The nevv and admirable Arte of setting of Corne:

With all the necessarie Tooles and other Circumstances belonging to the same: the particular titles whereof, are set downe in Page the following.

Magnus Deus in minimis.

Imprinted at London by *Peter Short*, dwelling at the *signe of the Starre on Bredstreet hill.*

1600.

The Contents of this Booke.

nuper tentata tritici plantatio
~~in~~ deserta propter molestiam & laborem
Bacon Sylua Sylularum Exp 442.

The new found Arte of *setting of Corne.*

CHAP. I.

How this inuention began.

HEere I may rather probably coniecture then certainly determine how this new conceit in setting of graine began. Happily some silly wench hauing a fewe cornes of wheate, mixed with some other seed, and being careless of the worke shee had in hand, might now and then in steed of a Raddish or Carret seede, let fall a wheate corne into the ground, which after braunching it selfe into manie eares, and yeelding so great increase, gaue iust occasion of some farther triall. Peradventure the great and rich fertillitie that doth vsually happen in the setting of beanes and pease, might stirre vp some practising wit or other to make the like experience in wheate and barley. Or who knoweth whether that Enigmatical marriage betweene *Bacchus* and *Ceres* so closely couched in such figuratiue termes by *Iohan. Baptista Porta*, in his *Magia naturalis* in the perclose of his title, *de nouis plantis producendis*, might giue some light vnto this new and late inuention of ours. And lastly, I haue beene

credibly enformed that this manner of pricking in of corne, hath by the publike impression of an ancient writer (whose name I cannot yet obtaine) euen in plaine and naked termes beene long since discouered and manifested to the view of each reader. But it shall not greatly skill from whence this profitable deuise had his first beginning (although for the honour of my countrie, I could wish the same were fronted with the name and title of an English Authour) and that as it hath pleased the great God of heauen in his vnspeakeable mercie and loue, and in these times of dearth and penurie, to offer a most plentifull encrease of our best nourishing, Manna vnto vs: so that wee may in all duttifull manner, with one heart and voyce together, giue all thankes, honour, and praise vnto so great & bountifull a benefactor, whose name is glorious in the heauens, and whose mightie power extendeth it selfe ouer the face of the whole earth, *cui laus in sæcula sæculorum. Amen.*

CHAP. 2.

The reason why Corne doth shoote vp into so manie eares rather by setting then sowing.

THe consideration hereof may well deserue to be handled in the second place, in my opinion, both *quia turpe est Philosopho quidquam sine ratione proferre*, as *Tully* holdeth: and also for that it is a principall motiue to stirre vp a number of drowsie wittes to the practise hereof; who not as yet finding or conceiting any sensible reason for the same, are rather content with the fly-bitten and leane iades, to liue or starue vpon the bare common, then by seeking out

out of better pasture, together more flesh vpon their backes, and to grow in better liking in the sight of all that shall behold them. Such winter corne then as is vsually sowne before or about Allhallowntide, in my poore reason, must of necessitie loose a great part of his generatiue vertue, and radicall humiditie, both by the extreme nipping of the cold Northren and Easterly winds, and the bitter frosts and hayle, together with the great aboundance of the cold raynie showers, which in the winter season doe so plentifully attach and fall vppon the graine, lying then either naked and bare to all weather, or very slenderly clothed with a poore and thinne garment, not able sufficiently to defend the inward and secret fire of nature, from such outward and piercing enemies; yea, though it haue taken roote, and gotten some head before this boisterous weather doe happen, yet by reason that the roote is shallow, and hath taken so slender hold in the ground, either the inward *Balsamum* is washed away with moisture, or nipped with extreme cold, that it cannot possibly send forth so manie spiring stalkes and eares as naturally it would, besides, the earth being full of clods, and not sufficiently broken into a fine mould with the plough, the corne cannot so easily and plentifully by this attractiue nature draw for his owne nourishment such store of that vegeratiue salt from the earth, as it desireth, the vertue and strength wherof is more at large handled in my booke of husbandrie, printed Anno 1594. and in that learned discourse of M. *Bernard Palissy*, in his booke intituled, *Des eaux & Fonteines*. But on the other side, when as the cornes of wheate shall lie so deepe within their true and na-

turall bed, euen their owne mothers belly, the earth being made so hollow & open with the spade, whereby they may also draw sufficient nourishment at their pleasure, then are all these outward and iniurious stormes of haile and raine, so sufficiently defended by this armour of proofe, as that the corne hauing his true and naturall putrifaction (being not performed without the helpe of a kindly heate) doth afterwards in his due season bring forth that infinite multiplication, whereof we haue had so manie and rich experiments of late, farre beyond all the hopes and harueſts of all our predecessours.

Chap. 3.

The manor of digging and laying of the arable grounds in this new practise.

WHen and how to digge, weed, or trench your grounds with the spade, is a matter so triuiall and well knowne already to euerie countrie *Coridon*, as that I hold it not a fit subiect for a scholers penne, and therefore here I must referre you to those beaten paches, wherein euerie simple Gardener hath walked a long time: onely the depth of digging, and true laying of the ground, seemes to be materiall in this our new kind of husbandrie. Some in this late practise, by their experience commend the breaking vp of the ground a foote and a halfe deepe, and some two foote, and some but one foote; but in my opinion since that, three, or foure, or fine inches at the most is a sufficient depth for the corne to lie in, I see no reason but that eight or twelue inches more, is a depth sufficient for the corne to roote in.

This

This being graunted, then shall you haue this farther benefite ensuing, that at the next breaking vp and digging of your ground, you shall turne vp such mould as hath not spent his strength in the former croppe, the fruite whereof you shall find in the next harueſt. And heere I must of necessitie acknowledge that M. *Tauerner* in his booke of Experiments, concerning Fish and Fruit, being of this yeares date, hath bereaued me of one of my best obseruations in Orchard grounds, the ignorance whereof I hold to bee one of the especiall and principall causes that so many of our English orchards do neuer yeeld fruite answerable to our charge and trauell: the secret whereof is this briefly. Euerie ground hath naturally an vpper crust of earth, which by the liuely and viuifying heat of the Sunne, the comfortable nature of the aire, together with the congelatiue part of the raine (for so M. *Bernard Palissie* termeth it, being the first Author of a fift element) which often falleth vpon the ground, is made more rich and fruitfull then all the residue of the earth besides, which vpper crust in some ground is a foot, in some two, and in some three foot deepe, and in some not aboue halfe a foote. And vnder the same vpper crust is either a hote chalke, a drie sand, a barren grauell, or a cold leane clay or lome, or such like: It is therefore requisite that you set your young trees in such sort, as that the roores may runne and spreade within that vpper crust: and if you set them deeper, they may happily grow, but neuer bring forth fruit in any plentifull maner: nay, though the earth should consist of one and the selfe same veine, and of one colour and nature in shew, yet because the Sun doth not giue his impression nor digestion

vnto

vnto the earth, but to a certaine depth (which I guesse not much to exceede two foote) you shall find that all the rest of the mould vnder that depth wil be leane and hungrie, not hauing any strength or fatnesse in it. And this is the reason why such earth as hath beene digged out of vaults and Cellers, not hauing receiued any life or comfort from the Sunne beames, though of neuer so blacke and rich mould in outward apparance, if it be spread vpon garden grounds, doth make them vtterly barren and vnfruitfull. That which is heere spoken of Orchard grounds, I would haue all wise and skilfull husband-men to apply also to their corne grounds, that in anie case they neuer digge deeper with the spade, then the strength of the ground will beare, and so by their ignorance discredite a worke and practise of so great expectation. Now concerning the laying of your groundes, either in ridges and furrowes, or in a declining leuell, whereby the raine may haue a sufficient conueyance, after they haue once receiued their due moisture from the cloudes: this resteth in the discretion of the husbandman, who best knoweth the moisture or drinesse of his owne grounds, and accordingly may giue such a current vnto them, as may best fit the seuerall natures of each ground or soyle. And heere I may not omit that ease and speed in breaking vp of grounds, which some of our late practisers haue found out, by making the first entrance with a deepe cutting plough, and then pursuing the same with the spade, wherby much charge, labour, and expence of time is auoyded.

CHAP.

Chap. 4.

The seuerall instruments for making the holes for the graine, and couering them.

IT is an olde saying, that handes were made before kniues: and I doubt not, but the same may aswell be verified in tooles. For to my remembrance, the first man that euer attempted the setting of corne, made the first holes with his finger. But this course being afterwards found to bee very long aud tedious, an instrument was deuised, hauing many teeth or pinnes, like a rake, with a staffe fastened in the middest of the backside thereof, which being thrust into the ground, did at one instant make twelue or twentie holes more or lesse, according to the number of teeth or pinnes therein. Afterwardes this toole was also disliked, as not making sufficient riddance of ground, and in place thereof a boord of three foote or thereabout in length, and twelue or ten inches in breadth, was thought vpon, hauing diuers holes boared therein, according to such distance as euerie particular man best fansied, through each of which holes a woodden dibber or pinne was thrust into the ground, being of the bignesse of ones finger, and of three or foure inches in length, hauing a shoulder or hole with a crosse pin, to keepe one selfe same certaintie in the depth of each hole. The last deuise that as yet hath come to my view (but now reiected, because in the drawing out of so many pinnes the holes do choake) is a boord of the same largenes with the former, driuen full of round pinnes of three or foure inches deepe within the boord, aud placed

each from other in equall distance by a true proportion, which at one impression maketh so manie receptacles for the corne, as there be pinnes in the boord. These boords are directed by a Gardiners line, first strained to some reasonable length, or by the eye, and thereby a straight course is kept in the setting. When each hole hath receiued a corne, then must you rake ouer the ground to fill vp those holes with earth againe: and during all the time of setting and raking, you must stand or kneele vpon one of your boords, which you must remoue from place to place, as your setting and raking from time to time requires.

Heere for the satisfaction of the simple, I haue thought good also to set downe the length of your boordes, together with the true boaring of them betweene each hole: and thereforeif you haue fiue inches distance, then may you in a boord of ten inches broad make two rowes of holes, the first and last hole being two inches and a halfe from each side, and if the length thereof be two foote and eleuen inches, then may it well containe two rowes of holes, hauing seuen holes in euerie rowe, the first and last hole being distant from each end two inches and a halfe: and when the ends or sides of two such boords so bored, shall bee laid together, they will make a true continuance of one selfe same skantling and distance of fiue inches through all your workes: if you worke vpon foure inches, then leaue at each side and end of your boord two inches: and so in a boord of three foote in length, and one foote in breadth, you shall haue nine holes in each rowe one way, and three holes the other way.

And it is to be remembred that eucry two workemen

men (whereof the one maketh the holes, and the other ſetteth the graine) muſt haue two boords to work vpon: and yet ſome be of opinion, that one man may performe both the works.

CHAP. 5.

At what depth and diſtance your corne muſt be ſet.

HAue beene enformed that the obſeruation of three inches deepe, and three inches diſtance, hath brought forth 30. quarters of wheat vpon one acre of ground, and that foure inches in depth, and foure in diſtance hath yeelded but twentie quarters: happily the ground or the ſeede corne might make the difference. Some ſpeake of fiue inches deep and fiue in diſtance, with exceeding great encreaſe: the true finding out of which proportions may eaſily be obtained by ſeuerall trials made at ſeuerall depths and diſtances together, at one time, and in one ſelfe ſame peece of ground. Only heere I muſt remember you of that which was ſpoken of before, in the title of digging, chap. 3. that concerning the depth, you muſt haue an eſpeciall care, that your ſeed may lie within the rich cruſt of the earth, and that his bed wherein he lyeth, may alſo bee of the ſame goodneſſe, or elſe the plough will diſcredite the ſpade.

3 inch 30 qr
69960 grains
4 inches 20 qr
392040 A bushel
5 inch
250905.

CHAP. 6.

Whether it be good to fill the holes with common earth, and to prepare the seed before it be set.

IF the ground be a rich and kindly wheate ground, you shall find a sufficient increase by filling them vp with their owne proper mould: for so haue the greatest and most vsuall trials beene hitherto made alreadie; yet some pregnant wits, desirous to exalt nature to the highest degree of perfection, haue attempted the filling vp of those holes both with Pigeons dung, sheeps dung, and cow dung, and such like, but with no good sincesse at all, *quære* if this dung had been first rotted into perfect earth and then bestowed. Neither doe I see anie reason in fat and lustie grounds, why any further encrease should be sought for then hath beene found already, for that the earth is not able to carrie a greater burthen, then she hath borne of late by these vsual practises which haue beene made. But in barren and spent grounds, it were greatly to bee wished, that by some artificiall and cheape meanes, a plentifull croppe of corne might be had and obtained. For the better furtherance whereof, I leaue these few conceits to the fauorable consideration of those, whose farmes are greater then mine, and haue had more familiar conference with nature then my selfe, referring them also farther both vnto the literall and secret sence of my booke of Husbandrie before mentioned. And heere I thinke it not amisse to cite in the first place that learned and poeticall Husbandman, who in his first booke of his Georgickes hath these Hexamiters.

Semina

Semina vidi equidem multos medicare serentes
Et nitro prius, & nigra perfundere amurca:
Grandior vt fœtus siliquis fallacibus esset,
*Et quamuis igni exiguo *properata maderent;*
*Vidi læta diu & multo *spectata labore*
Degenerare tamen: ni vis humana quotannis,
Maxima quæque manu legeret, &c.

* Citò coquerentur.
*Probata.

Here we see salniter and the mother or Lees of oyle commended, but whether *Virgill* doe meane a steeping or imbibition of the graine in the Lees of oyle, wherein there hath beene a solution of Niter, or the corne onely sprinkled ouer with them both in the setting; it is left to the consideration of the reader. But howsoeuer he intend the same, our countrie doth neither afforde store of Niter, nor yet of Amurca, to performe many (if any) acres therewith; and though it did, yet would it proue a worke of greater charge and trouble (as I suppose) then would be endured: vnlesse it were in some small practise, and for the triall of a magisterie, or vpon some richer seede then wheat, which in lesse quantity would proue more profitable then any ordinary graine, whereof there are some fewe of English breede, if I bee not deceiued.

But now let vs leaue *Virgill* to his poeticall vaine, and let vs come to that glorious Neapolitane *Iohan. Baptista Porta*, who expecteth a generall applause of the whole world, for his last and learned booke of *Magia naturalis* (as in his preface to the reader, by a recapitulation of all his infinite readings, charges, and conferences with the greatest clarkes of his time, he would intimate vnto vs) and washing our eyes first

in Eyebright water, let vs ſee whether we are able to pierce and penetrate into theſe thicke and foggie clowdes of skill, which he hath in ſo many cloſe and figuratiue termes (as willing to vaunt of his owne wit, but vnwilling to benefit others) ſo ſtrangely deliuered vnto vs. I finde in the latter end of his third booke, entituled *de nouis plantis producendis*, and ouer the 21. chapter, this ſuperſcription.

Quomodo fruges ſatis amplo fœnore ex ſatu colligamus, & è vineis vinum.

Whereupon he diſcourſeth in manner following: *Vt luculentam, ſatiſq; exoptatam coronidem huic noſtro libro imponeremus, docebimus quomodo frumentacea, & legumina ſatis amplo fœnore è ſatu colligamus, & è vineis vinum. Res profecto immenſæ vtilitatis, vt ex vno modio plus centuplo proueniat. Sed ne quis, quod centuplum plus accipiet, dixerim, putet velim hunc exactum modiorum numerum ex vno ſato collecturum: nam anno, cœlo, ſolo, & ſyderibus renuentibus, minor erit collectio, ſed non tam minor, quin quintuplo vſitatum non ſuperet; at his fauentibus, ex vno modio centeni quinquageni reddentur. Sed pollicitatio hæc noſtra aliquibus paradoxum videbitur, ſed ſi ſanæ mentis eſſent, maximum profecto videri deberet paradoxum, cur ex ſato ſemodio ducentos modios non recipiamus, quum ex ſato, & concepto acino, videamus radicem in multiplices & numeroſos culmos fructificare, plus minus quindecim, & in ſpica ſexaginta grana contineri? mitto Byzacij Africæ ſolum Plinij, quod vno grano quadringenta paucis minus germina miſerit, miſitq; ex eo loco procurator Neroni* CCCXL. *ſtipulas ex vno grano. Sed cauſam venemur, vnde id accidere poſsit. Sunt qui dicant id euenire, quod pars maior iacti fru-*

menti

menti ex volucribus, talpis, vermibus, alijsq; subterraneis animalibus deuoretur. Sed id falsum arguitur, quod ex sato lupini modio non plus minus quindecim recipiuntur, quin lupinum impunè iaceat derelictum, ab omnibus animalibus sua ingrata amaritudine tutum, & suis in thecis, vaginulisq; plus minus centum grana contineantur. Sunt alij, qui id cælo ascribant, frigorum, calorumq; iniurijs, vel imbrium frequentijs, vt nunc torpeant gelu arua, nunc siti infestentur, nunc in herbarum copiam luxurient, nunc macie intabescant; sed hoc falsum congruit argumentum, quod ex maximo cæli fauore, neque ex vno triceni redduntur. Sed ne latius euagemur, dicimus non omnia spicæ & vaginulæ grana nasci, nam alia Deus ad escam animalium, alia ad semen destinauit. Sunt in spicis grana, quasi abortus & degeneres fœtus, quæ non fœticant sed descisciunt in vitium. Sunt quæ è glumis in spicis emicant habitiora, quæ ad propagationem producuntur. Præterea nec debito tempore seruntur, destituunturq; debito agricolarum opere: vnde si his obuiabimus; omnia ex voto succedent. Semina enim prolixioribus radicibus implexis, longè latéque sub tellure serpentibus, numerosiores culmos deproment, circumundiq; spicis vallatis. Sponsa ergo suo viro ducatur, non ex primis vel vltimis natis sed è medijs, quia imbecilles sunt, ac balneo secreta & vnguētis delibuta & pingui depasta caprarum veterum Vulcano, & Baccho associata cubile molle, & optimè stratum calefiat: viuifico enim calore in amicam naturam coeunt, & dulcioribus amplexibus stringuntur & hærent. Sic animata viro semina, non degenerem, sed legitimam prolem donent. Suo fæcundo lumine Luna præsit, nam ferax feracem reddit, id restat præmonendum, vxorem Baccho ducendam non capillis destitutam, nam suo decore capite destituto spernitur à viro sponsa, neque haberet, quo noxia purgarentur, sed solum cincinnis orbetur; sic enim minus compta, plus sua placebit

&

& vire. Which for the better vnderſtanding of ſuch as are no Latiniſts, I haue thought good to tranſlate into our naturall language, as followeth.

How by ſetting and planting of Corne or vines, a great and plentifull encreaſe may be had.

That now at length, according to mine own deſire, I may ſhut vp this booke of plantes with a moſt famous and renowmed concluſion, I will heere declare how all kind of corne and pulſe, together with the vines themſelues ſhall recompence all our labours with great encreaſe. A matter without all queſtion of ſingular profite, to receiue more then an hundred buſhels for one. But leaſt I bee miſtaken in this great proportion, I would not haue any man to thinke, that I doe heere ſet downe anie exact number of buſhels, from which nature can at no time varie: for if the yeare, the heauens, and the ground it ſelfe, together with the fatall influence of the ſtarres, do all conſpire together, the number of our buſhels will fall ſhort, but neuer ſo ſhort, but that they will by fiue degrees exceede the accuſtomed yeeld. But if all theſe concurre and affoord their ſeuerall fauours, then may we wel expect 150. buſhels of one. But this proud promiſe of ours may happily ſeeme a paradox vnto ſome, vnto whom, if they were of any ſound & ſharpe iudgement, it ſhould rather ſeeme a greater paradoxe, why halfe a buſhell ſhould not rather giue 200. hundred buſhels againe, when as we do often ſee, that one corne being ſet and well rooted, doth ſtemme vp into diuers ſtalkes, yea ſometimes to the number of fifteene, more or leſſe, each eare alſo containing

three-

threescore cornes within it. I do heere omit to speake of Bizatium, that fruitfull ground of Africa, whereof *Plinie* maketh mention, where out of one corne foure hundred stalkes did braunch: and the Gouernour of that place did also send to *Nero* 240. stemmes arising from one graine. But let vs seeke out and hunt after the true reason hereof. Some be of opinion, that the cause why the same fertilitie doth not happen in our vsuall and ordinarie manner of sowing, is, for that a great part of the seed which is sowne, is deuoured by the foules of the aire, by Moles, wormes and other creeping creatures within the ground. But this is manifestly disproued in the sowing of Lupines, whereas seldome we do reape little more or lesse then fifteene bushels for one, although the same be so bitter a kind of pulse, that none of all these deuouring creatures will once touch it, but lieth safe within his hose, each codde containing much about an hundred graines: some attribute the same vnto the heauens, and the iniuries arising of heate, cold, and continuall showers of raine, that do often happen; so as sometimes the grounds are benummed with frosts, and sometimes parched with heat, somtime they make a rich & fertile shew, and sometimes they wither and waxe barren; but all this is easily conuinced. For that admitting that the heauens do afford all their fauourable influences at once, yet do we scarce obtaine at any time thirtie for one. But now to come neerer to our purpose, wee do affirme that each corne that is found within the eare is not apt to grow, for God hath created some of them for the food of liuing creatures, and some for seed corne. There be in euerie eare certaine abortiue and bastardlie cornes, which will neuer fructifie, but

 become

become vtterly vnprofitable; and in some eares there are cornes which are more beautifull to behold then the rest, which nature hath ordained for propagation. Besides all this, the seed it selfe is not alwayes sowne by the husbandman in his due time, neither hath it all his due rites and ceremonies persourmed. So that if we can meete with all these imperfections and errours, then will all good successe follow, according to our owne hearts desire. For the rootes being large in spreading vnder the ground, and each imbracing other in their manifold wreathings, will thereby send forth a greater number of stemmes, beset and garnished with eares on euerie side. For the better accomplishment whereof let the bridegrome make choice of such a wife as is of the middle sort, and not of the first or last borne, because they are of a weaker constitution, let them both goe into a warme bath, and there annointing themselues with sweete ointment, and with the fatte food of old Goates, being mixed with *Bacchus* and *Vulcan*; let their soft and euen layd-bed bee gently warmed: for by that viuifying heat they will vnite themselues in an amiable maner, and bee knit and ioyned together in most sweet and louing imbracements: and the seede being thus quickened by the powerfull heate of the man, will in the end bring forth a kindly, and no bastardly issue: Let the Moone be predominant with her prosperous light, for shee being fruitfull, will also make the same to fructifie the better. But yet I must admonish you of one thing more, that such a wife as is fitte for God *Bacchus*, must not bee bald and without haire, for so wanting the due ornament of her head,

she

ſhee might happily be deſpiſed of her husband, neither ſhould ſhee haue whereat to purge her owne excrements, onely let all curlings and perriwigs bee laid aſide, that ſo being the more retchleſſe in her attire, ſhee may ſeeme more pleaſing and acceptable to her husband.

And what if all this myſticall marriage betweene God *Bacchus* and the Goddeſſe *Ceres* (at the ſolemnization whereof onely *Vulcan* and *Luna* were preſent, as though neither *Saturne*, *Iupiter*, *Mars*, *Sol*, *Venus*, nor *Mercury*, nor the reſt of that celeſtiall crewe were neither worthie to dine nor daunce at the Wedding) what, I ſay, if all this great myſterie or Magiſterie of nature, as *Baptiſta Porta* would haue it to appeare, bee nothing els but a ſoking of corne in wine, or in the new muſt thereof, before it bee ſet? Might not this without the prophaning of Nature, or her ſacred Maximes beene ſafely and without offence in plaine termes deliuered to the publike view of the worlde? But let vs examine the particulars of this parable. The wife (he ſaith) muſt neither be of the firſt nor laſt, but taken out of the middeſt: and here, becauſe hee ſhall be his owne expoſitor, I referre you to his ſecrete for enlarging of the Gourd, pag. 137. where he citeth theſe verſes out of *Columella*,

Siue globoſi
Corporis atque vtero nimium quæ vaſta tumeſcit
Ventre legas medio, ſobolem dabit illa capacem.

And this, ſaith *Porta*, is not onely to bee obſerued in this plant, but in all others likewiſe, for thoſe ſeedes which are contained within the middeſt of the

bulke are more perfect themselues, and bring forth more perfect plants then those weake and imperfect ones, which occupie the outtermost places; and so the graine, hee saith, in the middle of the eare bringeth forth a larger corne then those which growe in the toppe or bottome thereof.

Concerning the bath and ointment wherein *Vulcan* and *Bacchus* are vsed, I thinke he meaneth some fat temper made with cowdung or Goates dung, the older the better, moistened with wine or new must, whereby *Bacchus* is signified, in whom the secret fire and heate, which he holdeth, may also resemble *Vulcan*, vnder whose name fire is sowetimes signified, as in that saying of *Paracelsus*, *In Vulcano veritas*: and in this compound the goddesse *Ceres* is lapped before she be set into the ground, or else the ground and mixture are after watered with wine, or els the corne is first steeped a certaine time in wine before the graine is bestowed in the earth: anie of these constructions seeme probable, and to haue some affinitie with his figuratiue termes.

Her bed must bee verie soft, and delicately made, whereby he doth manifestly insinuate the very digging with the spade, which worketh the mould into a most fine and subtill bodie: the warming of the bed, and those sweete collings and clippings together are intended to bee wrought with the moistning heat of *Bacchus*. It seemeth also that he would haue this setting performed in the increase, or toward the full of the Moone. The corne he would haue to bee set together with his chaffe about it, which he termeth the haire, whereby nature purgeth the excrement of the head, but not with the beard of the eare, which hath

a

a curled kind of graine vpon it. Let this satisfie, that I haue aimed at the marke, the pinne being so fare off, and cleane out of sight. But what should we vexe our spirits in beating out the sense of this mysticall Latine, which as without all other circumstance, were set that one corne pricked into the ground, bringeth forth eight hundreth cornes at once, whereas *Porta* speaketh of two hundred onely at the most, euen whē heauen and earth doe all ioyne hand in hand together to helpe his inuention? And who knoweth whether he mistake the reason of his owne conceipt, for happily the Mellownes of the ground being opened & broken with the spade, did of it selfe performe the great wonder which he writeth of, and then both *Bacchus*, and *Ceres*, and *Luna* may haue Lacke Drums entertainment.

Now if I were also disposed to attire and disguise a plaine secret in his figuratiue robes, what a deepe & drunken riddle could I here set downe of steeping barley or wheat in new ale in cornes (although I hold the wort, so it be of the first tap, to be much better) for this doth seeme to be his owne naturall bath, whereby it should receiue a multiplying vertue in his owne kind? I feare to prosecute this secret anie farther in such Philosophicall termes, lest some nouice in Alcumie should suppose that I do goe about to vnfold and disclose the sacred materials and working of the Philosophers stone, and yet to speake in good sooth, I durst vndertake to perfourme as much with ale or beere as *Bap. Porta* shall do with his sacke and sugar, or Claret wine and Limons, let him make his choice.

And because *Virgil* hath spoken of Niter, I haue thought good also, as a Parakel to the same out of M.

Bar. Googe his booke of Husbandrie, fol.33.b. to set downe the steeping of Beanes in the water wherein Salt Peter hath been dissolued, and why not other graine and pulse, as wel as Beanes? And thus you haue Rome & Naples answered with Surrey and London, I pray God all may bring forth one good conclusion for our common-wealth of England.

But why should we spend these costly liquors that are fitter for Tauernes & Alehouses, then for rusticall imbibitions? when as with common water and the dung of cattell, especially of Oxen, Kine, and Sheepe, or Pigeons dung (wherof more quantity, with a great deale lesse charge (being not much inferior in effects) may so easily be had & obtained) Then heare me with patience, & if I happen to slip, stay me with a friendly hand, and so happily I may saue some of you from many a dangerous fall. There is a great opinio conceited, yea publikely maintained by good Authors in their seuerall books about imbibition of corne in some fat and fructifying liquors; but neither the strength of the liquors, the time of imbibition, nor the proportion between the liquor & graine, hath as yet bin thoroughly sounded, nay scarsely touched by any; which three points I holde to be so materiall, as that without the knowledge of them al in some good measure, nothing else but clamors against the writers, and errors in the practizers are like to ensue.

And first concerning the strength of your liquor vpon your dung, you cannot lightly erre, so as you let the same rest vpon a sufficient quantity thereof, vntill it haue gotten a deep colour, and a strong smel & sauour frō his ingredient: as suppose you put two parts water to one third part of dung, suffering the same to infuse

foure

foure or fiue daies, and stirring the same once or twice euery day, till it haue gotten out all the hart & strength of the dung, or so much therof as the water is able to receiue; thē after some setling, strain this liquor through some course cloth, & if it will not run, then adde more water vnto it, for here your speciall care must be, that your liquor do not grow too thicke: after al this, let the same repose 12. or 24. houres, & then gently dreine away the cleere from the grounds or feticall residence, and so haue you a liquor sufficiently prepared to steep your corne in: & for the better performāce hereof, you may boare a hole within an inch of the bottome of the vessel, or halfe an inch, according as you shal see ỳ same to run cleere & not muddy into your receiuing vessel.

And as for the time of imbibition, it is a rule in naturall Philosophie, that euery thing hath his stomacke, which doth neuer leaue drawing & attracting vnto it selfe such matter as is apt for it, vntil it be glutted; and then as being ouercharged, it loatheth and spueth out euen that which otherwise it most desireth: as it doth manifestly appeare in the stomacke of man, wherin by ouergorging it self a *Nausea* doth presently ensue. This is yet made more manifest in the art of dying, where, if in your blewes and greenes you worke with Indico, or in Stammels, Crimsons, Carnations or Scarlets, you worke with Greine or Kutcheneele, the cloth when it hath receiued his glut of colour, though neuer so often dipped after, wil nothing at al exalt it selfe in beautie or richnes of colour; euen so it fareth with corne, after it hath imbibed so much liquor, as it can well beare and brooke without breaking of the hull, then is it time to dreine away the water: and yet wee see, that Pease, though they bee steeped till

they

they sprowt a little, that they will grow notwithstanding, I leaue the aduenturing of wheate and barlie so farre vnto them, that list by often and manifold triall to search for the period of this practise.

Lastly, for the better finding out of a true proportion betweene the corne and your liquor: first, put your corne in the vessell, and adde so much of your fat liquor vnto it as will couer the same. And if the corne drinke it vp, then adde more liquor therunto: and the onely feare in this worke, is least if you ouercharge your corne with water, that the water will rather draw the strength from the corne, then the corne draw strength from the water.

And thus I haue discouered the true vse of all imbibitions: which haue hitherto beene confirmed by some, and condemned by others, each seuerall man reporting according to his owne experience. But the errours may from henceforth be easily preuented by a carefull obseruation of these few rules already delivered in as plaine and simple a maner as (respecting the general good, which was the *primum mobile* of this Discourse) I could possibly deuise or publish.

Heere I thinke it not impertinent to our purpose to set downe seuerall means for the enriching of ground, the trials whereof, by way of imbibition, I referre to each mans particular experience.

Sea Kilpes and sea Tangle, and other sea weeds are found by experience to enrich both arable and pasture grounds exceedingly. Shreds of woollen cloth strewed vpon pasture ground will bring forth grasse abundantly.

The dregs of beere and ale applyed to the rootes of trees, and other smaller plantes, will make them

flou-

flourish and prosper mightilie, Seeds steeped in brine, proportioned according to Sea water, which consisteth of one part salte, and eyghteene or twentie parts water, wil in diuers grounds procure a good encrease.

The Soote of Chimnies, both ingendred by Seacoale, as also by wood and charcoale in a very small quantitie, worketh great effects this way.

There is a salte which the Petermen vpon the refining of their Peter, doe separate from the Peter, this salte (if I be not deceiued) is the salte purchased from the ashes, vpon which the Petermen powre their foggie liquors to cleere them; one worke (vnles it be a great one) doth not yeelde much aboue a bushell thereof weekely: this salte I take to be a trew vegetable salte, and therefore exceeding profitable, either to be strewed vpon grounds to be mixed amongst the seede corne, or for imbibition.

Shauings of horne, vpon mine owne experience, I must of necessitie commend, by the meanes whereof, I obtained a most flourishing garden at Bishops hall, in a most barren and vnfruitfull plot of ground, which none of my Predecessors could euer grace or beautifie either with knots or flowres.

I haue had the like experience with singular good successe by strewing the waste sope ashes vpon a border of sommer Barlie, whereof three eares would haue counterpeized any siue that euer came to my sight: you may see a plentifull discourse of these sope ashes in my booke of husbandrie.

Some commend greatly the watering of ground presently after it is sowne, with an artificial Brine, consisting of an eyghteenth or twentith part of salte: this is performed by a hogshed or some other such like vessell

ſell drawne vpon a ſled, hauing one of the heads boared full of ſmall hoales like a watring pot.

The reſidence or grounds of the Oad fat, ſerue alſo to enrich ground with.

Malte duſt may heere alſo challenge his place: for foure or fiue quarters thereof, are ſufficient for an acre of ground.

The hulles which are diuided from the Oates, in the making of Oatmeale, either in their owne preſent nature, or being burnt to aſhes, make an excellent ſubſtance for enriching of ground. Fearne either rotted to dung by a mixture of earth amongſt it, or conſumed with fire into aſhes, maketh a ſingular ſoile to lay vpon barren and hungrie grounds.

When the Iron ſtone or oare is burnt, thoſe fine aſhes that are ſifted from the ſame, doe proue a moſt excellent ſubſtance for the enriching of Neat meadowes, or Mariſh groundes, eſpeciallie ſuch as are ruſhie, flaggie, or ſedgie, and will bring the ſame to a fine ſweete graſſe: you ſhall finde the ground euery yeare better than other, with a manifeſt and apparant difference betweene that parcell of your ground which you haue enriched therewith, and all the reſt of the ſame field, both by the glorious greene colour which it carrieth, and alſo by the delight of the cattell continuallie feeding thereon, and refuſing the other till that be ſpent. There is plentie of this matter to be had in Suſſex, Eſſex, Wales, and ſuch other ſhires wherein there hath been any long continuance of yron workes, and thoſe hils which conſiſt of this matter are worth the breaking vp, though they be auncient and haue lien long vncouered; but the beſt and hartieſt, is that which hath been kept alwaies couered

and defended from the raine: this kinde of foyle is also good for wheate ground, and three loades thereof are a sufficient proportion for one acre: and if you intend the same for grasse, you must spread it vpon the ground about alhallountide. The light of this secret I receiued from a Yorkeshire Gentleman, a man both of great gifts and great possessions, who assured me of three yeares triall made by himselfe with very good successe, whose opinion is, that three loads thereof will enrich one acre of ground for seuen yeeres at the least.

Sal Armoniake being a volatile salt, first incorporated and rotted in common earth, is thought to be a rich molde to plant or set in (*quere* of steeping graine in water, hauing a trew proportion thereof first dissolued in it) but he that can proue so fortunate as to finde out the trew Sal Armoniake of mettall, shall be able with small quantitie to worke great wonders in this kinde.

Dogges and Cats, and other beastes, and generally all carrion buried vnder the rootes of Trees, in a due time will make them flourish and bring forth fruite in great abundance.

Here I cannot omit a strange secret deliuered by a Gentleman of good worth vnto mee, euen before this worke was fullie perfected, which I haue reserued for the conclusion of this title. Hee assured mee of a gentleman, at this present dwelling in Cornewall, who being very industrious, and searching into the workes of Nature, would needes attempte the sowing of Wheate in his arable groundes, being of such kinde, nature and qualitie, as was meerely repugnant and vnfit for that graine, as the experience

of the greatest part of the Countrie round about him did manifestly declare. And this he performed onely by infusing his seede corne foure and twentie houres in a strong liquor, that had descended from his muck-heape into a receptacle of bricke: but he neuer infused his corne (as I am informed) till the liquor had been of two yeares date, and he alwaies dried his corne before he sowed it: *quere* if in lesse time and without drying, the same effects will not follow.

CHAP. 7.

How to make choice of your seed corne.

SVch corne as is rubbed betweene ones hands out of the middle of the eare, the vpper and neather part ther of being first diuided, I hold (with *Bap. Porta*) to be the most fruitfull seed of all the rest, and that the hand, though it bee a more laboursome worke, doth performe this better than the flaile, which maketh no diuision of the graine, and yet bruiseth a great part thereof by the violence of the stroke. But if your threshed wheat content you, then is it best either to picke each corne by it selfe, and so to diuide the good from the bad (which is a fit worke for children, and may the rather be endured, for that so small a proportion of seed will serue to set an acre, viz. 12. pintes thereof, if each graine be at fiue inches distance, as some haue obserued) or els to powre your corne into a tubbe of water, stirring it vp and downe, whereby the best and heauiest cornes will sinke to the bottome, and the lightest graine will fleete and flote in the toppe, which may easily be seuered. I know no other meanes seruing for the choice of your seed corne, sa-

uing

uing those which are so vsuall and common, as that they deserue no place amongst new inuentions, and therefore I do here aduisedly omit to touch or name them.

Chap. 8.

The difference of yeild betweene the plough and the spade, with some new addition to the plough.

HE that reapeth foure quarters of wheate out of one acre by his plough, doth hold himselfe well contented, as with a rich croppe, which is eight at the least for one. I know the greatest number do scarcely attaine seuen for one, and many but six for one: but if he haue ten or twelue for one, then hee acknowledgeth himselfe to haue receiued an extraordinary fauour and blessing from the heauens: yet (because both happily, and by credible report it is come to my hands) I will heere set downe one rare experiment perfourmed this last yeare with the plough, wherein no doubt the Actor did striue euen in the strength of his wit and spirit to make the best imitation which he could of the spade. The ground hauing a naturall declining or descent by his owne scituation, was first crosse ploughed with a very deepe cutting plough, and then ploughed ouer the third time with a shallow plough, that made very close & narrow furrowes; then was the seede sowne by a skilfull sower, and then harrowed ouer; and by this newe practise the owner obtained 15. quarters (I dare not say 20.) vpon each acre which hee sowed. I doe not cite this strange & admirable experiment, either to ouerthrow the whole frame of my former worke, by vndermining the foundation thereof, or to hinder the labours

32. a good crop
is 8 for one
28 ½ 24 20

of ſo many thouſands of poore and diſtreſſed people, which by digging and ſetting are like to be profitably employed in this land by meanes of the ſpade (whoſe eſtates with all Chriſtian commiſeration I doe pitie, and am willing to relieue) but profeſſing all the good I can, and by all the meanes that I may, to aduaunce the common good of the whole realme, & knowing that if this new practiſe of digging by good ſucceſſe thereof do happen to become generall in and ouer the whole land, notwithſtanding the realme be populous, & ſurcharged with infinite numbers of poore men, women, and children, and maimed ſouldiers, that yet there will ſcarcely be found workemen enough for the tenth acre of land; I ſay, for the better increaſe of all ſuch grounds where the plough muſt of neceſſitie be vſed, I was bold to inſert this inuentition, to ſupply the defect of labourers, which otherwiſe of neceſſitie would enſue. And yet if I may beleeue thoſe infinite reports, which are now with open trumpet ſounded into each mans eare, in commendation of the ſpade, there will be no cõpariſon betweene the plough & it, though all men would ioyne all their wits together for the better furtherance thereof; out of many of which reports, I will only remẽber theſe few.

A Iuſtice of Peace & Quorum of my acquaintance, dwelling in Eſſex, and deſirous to make a triall of that wonderfull experience, ſo commended at the Court of Requeſts barre by a Counſeller, who had ſeene the ſame the ſommer before, would needs ſet a parcell of ground with his owne hands, as ſoon as he came from Michaelmaſſe tearme laſt to his houſe: in Aprill the ſame began to ſhew verie greene and full of blade, and in harueſt time each corne brought forth at the leaſt

27. eares, some 30. and some 32. with fortie graines in each eare, whose proportion is at the least a thousand for one. For the truth of which report, I dare gage my credit, I know the Gentleman to be so temperate and well aduised of his speech.

I doe heare of another Gentleman dwelling in Surrey, who hath reaped 16 bushels out of one pint of wheat which he set, and that some cornes brought forth 40. & some 48. eares hauing 66. 68. & 72. cornes in each eare, I could name the Gent. dwelling, & place of the triall, but this which I speake I dare warrant to be true, hauing good ground of credit for the same.

In Northamptonshire there grew barlie this last summer, amongst the which there was found some rootes hauing 120. eares vpon one roote, with thirtie graines at the least in each eare.

I haue also heard by sundry reports of 20. 30. & 32. quarters of wheat vpō an acre, & of 15. quarters of barly vpon an acre; yea there haue been some which haue reported, that they haue had 15. quarters of wheat vpō one acre by this maner of setting, the ground being spent and out of heart by often plowing before.

And if I should report all the seueral trials that haue beene made by seueral persons, aswel of the Nobility as others, within these two last yeares, I should both weary my selfe with recording, and you with reading such infinit numbers of practises as I could produce, *sed ex his reliqua.*

I wil here either borrow leaue, or cōmend without leaue, a new, light and portable Pumpe, being of late graced with her Maiesties most fauorable priuiledge, which I am bold to publish, together with this artificial husbādry, because I know no better means to giue a

pub-

publike notice thereof vnto all my country men then by this pamphlet, which taking the wings of fame vnto it, is like to disperse both it selfe and his companion abroad in a most speedy and sodaine manner through all this litle Iland. This Pump is of wood, & moueable from place to place by one mans labour: it is kept with verie small charge in good reparations: it is cheape, and deliuereth great store of water in a little time by his double stroke to a reasonable height; it occupieth small roome; it seruеth to emptie Cellers and ponds; it is verie necessarie for all merchants ships, and other ships of warre, whereby all superfluous water may bee safely conueied out at the neather port-holes in a great leake happening by fight, or otherwise. But the most generall vse thereof (as I take it) will bee for all those stately houses and buildings which border vpon the riuer of Thames, or any other riuer, whereby they may receiue sufficient store of water to serue all their offices and gardens belonging to the same. You may heare farther of the Authour of this Inuention by the Printer hereof.

H. PLAT Esquire.

Adam's tool Revived. p 32. cap 5.

at 3 inches distance. 3 inches 1 sq 30.4 2 ark.

4840 sq yards. 43560. sq feet. 6.272.040 sq inches

at 3 inches distance. 096960. grains powd.

which is ... 3. 24 sq. p 22 ... V.1

for 4915 20 grains in a bushel p. 228. 229.

then 1. gall contains. 61090.

a pint. viz 2 ounces 7812 - 1/2.

2 lb a pound troy

But by statute. 24. grs = to a penny wt.

20. pennywts = to an ounce

12 ounces = to a pound

Grains

24		
480	20	ounces
5760	240	12

Coin weights

2 pennywts = 1 R^t.

4	2	Quarts = Pottles
8	4	2 Gallons
16	8	4 2 Pottles
64	32	16 8 4 Bushels
512	256	128 64 32 8 Quarters
2500	1280	640 320 160 40 5 Way
5120	2500	1280 640 320 80 10 2 Last.

Corn Measure

pints	2	Quarts					
Quarts	4	2	Pottles				
pottles	8	4	2	Gallons			
Gallons	16	8	4	2	Pecks		
pecks	64	32	16	8	4	Bushels	
Bushels	512	256	128	64	32	8	Quarters
Quarters	2500	1280	640	320	160	40	5 Way
Way	5120	2500	1280	640	320	80	10 2 Last.
Last							

10	8	4	2	Pecks				
64	32	16	8	4	Bushels			
512	256	128	64	32	8	Quarters		
2500	1280	640	320	160	40	5	Way	
5120	2500	1280	640	320	80	10	2	Last.

5120. pints. = to so many pounds troy

Vert

fol 1

30 Quarters ye acre = 240. Bushels.
(500.000. grains in a bushel) 120.000.000 gr.
ab. 700.000 grains sown & product is about
172 almost for 1. neare 171. for 1.

2/ at 4 inches deep & 4 inches distance 20 lb. ye acre
20 Quarters ye Acre. = 160: Bushels.
(500.000. grains in a bushell) 80.000.000 gr.
ab. 400.000 grains sown. & product is 1/200.

Sow & Acc. in Houghtons Collect. Husbandry
Vol. 1. p. 229.
from one grain 80 ears. containing. 4000 gr.

Acre Table of Inches. & Sq. of distances

1.	6.272.640	13.	37.116.	26:	9.279
2.	1.568.160	14.	32.003.	27:	8.604.
3.	696.960	15.	27.878	28:	8.000
4.	392.040	16.	24.502	29:	7.458
5.	250.906.	17.	21.703	30:	6.969
6.	174.240	18.	19.360	31:	6.526
7.	128.013	19.	17.372	32:	6.125
8.	98.010	20	15.681	33:	5.760
9.	77.440	21.	14.223.	34:	5.426
10.	62.726:	22.	12.968	35:	5.144
11.	51.840	23	11.857	36:	4.840
12.	43.560	24.	10.889.	37:	4.581
		25.	10.038	39:	4.125
				40:	3.920
				41:	3.731
				42:	3.555

(fol 2)

grains								
32	penny							
640	20	ounce						
7680	240	12	lib Troy or Pints.					
15360	480	24	2	Quarts.				
30720	960	48	4	2	Pottles			
61440	1920	96	8	4	2	Gallons		
122880	3840	192	16	8	4	2	Pecks	
491520	15360	768	64	32	16	8	4	Bushells

24	pennyweight	
48	20	penny
5760	240	12

NB.: 24 Grains of ye Best Refined Silver = ounce
32 Grains Common grains = ounce
Lee & Lipot bigger [illegible]
[illegible]

Digging of Rod what acre Table

1 of Rod	160 of Acre	=	0. 13. 4.
2 of Rod	320	=	1. 6. 8
3	480	=	2. 0. 0
4	640	=	2. 13. 4.
5	800	=	3. 6. 8
6	960	=	4. 0. 0

at a farthing.	160 =	40	0. 3. 4
at a Halfpenny =	80	0. 6. 8.	
at 3 farthings =	120	0. 10. 0.	

4 Acres of Land will keep
a Cow & Calf or one horse
with grass & hay. if worth 1 Syra
3. if worth 20 ℔ acre & better

4

NB. if land is worth 10. ℔ acre only.
6 Acres, or 7. or 8 will not keep
them or a horse so well as 3 of
20. besides more charge of fences

Land is worth 20 ℔ acre. generally
from 10 in Common years a load
or more of Hay may be mowed in before

6 Acres. of 20. ℔ acre
if in 3 parcels. 2 Cows. or 1 Cow & 1 Horse.
12 of 10. ℔ acre
will hardly keep 4 lits. & not so well

10 Acres of 20 ℔ acre
4 Cows & Calves, or 3 Horses.
20 Acres of 10.
3 Cows & Calves, or 2 Horses. 1 Colt.

20 Acres. of 20
4 Cows & Calfs. 2 Oxen & a Horse

40 Acres. of 10
A Team of Oxen. 2 Cows & Horse
& some plow Land.

Fol 4

100 Acres

whereof 40. of Good Land:	40
& plowing Land 60 of Courserland.	30
Rent	70

is the least Quantity a man may keep a Team of 4 Good Horses. on to do his own & livelihood some other work at Hire.

therefore Friends, cant thrive, altho a good penny worth, unless other very profitable & constant work for a Team

An Ox Team may be kept on less. without Constant work (on 40 acr) 4 Oxen & 2 small Horses. & 6 Cows.

500. Acres.

400 acres of 10 & acre	200.
100 acres of 20	100
Rent	300.

1 Good Teams. viz. 8. Horses
1. Ox Team of 6 Bullocks
A dairy of 12 Cows.
6 fatting bullocks. 300. Sheep
12 Young Bullocks. 12 Calves.

640 Acres is a Mile square, & as much or more than One Man can manage.

Turn over

In England & Wales 40,000,000 Acres.

$\frac{40,000,000}{640}$ = 62.250 Miles Square.

Peoples in England &c. at 8 millions
about 5 Acres to a Head.

Then 640 Acres to maintain 125 heads.

Then 5120 Acres = 8 Miles = 1000 persons &c

Suppose 10,000 Parishes in England.
each might contain 4000 acres
But as many Parishes in Cities &c more close
& very few inhabitants to a Parish &
many not used. I suppose 8000 Parishes

A. 8,000 Parishes. B. 8,000,000. Peoples
C 40,000,000 Acres.

To Each Parishes, 1000. Peoples & 5000 Acres

Rents £

by land tax at 3/20 or 1/10 produces 1.000.000.
now not levied or undervalued 250.000
1.250.000

Total rent. 12,500,000 Pounds.

it is for Acres 40,000,000 at 2.6 pound 5.000,000
~~at 3.6~~
at 5.6 10.000.000
at 6.0 12.000.000
at 6.2 12.333.333
at 6.3 12.500.000 as above.
at 6.4

See Farther after Next Sheat.

Fol. 6.

out of Capt Whitbourns Discovery of Newfoundland.

The Charge of setting out a Ship of 100 Ton with 40 persons to make a fishing Voyage to enere a Plantacon.

10.000 cwt of Bisket at 15 s p Ct	82.10.00
26 Ton of Beer at 53 s 4 d p Ton	69.7.00
2 Hogshead (or 2 tun) of English Beef	10-00-00
2. Hogshead (or 200 cwt) of Irish Beef	5.00-00
10 fat Hogs. (or 200) salted 10 s Cask	10.10.00
30 bushl of Peas at 4 s p bush	6.00-00
2 firkins of Butter	3.00.00
200 cwt of Cheese at 25 s p cwt	2.10-00
1. bushel of mustard seed	0-6-00
1. Hogshead of Vinegar	1.5.00
2 Barrels of Oat meal	1.6-0
wood to dresse meat	1-0-0
1 Great Copper Kettle	2-0-0
2 lesser Copper Kettles	2.0-0
2 frying pans	0.3.4
Platters, Ladles & Cans	1-0-0
Bellows, Tongs, funnels, Locks	0-7-0
100 cwt of Candles	2.10.0
930 2 cwt of Salt at 2 s p bushell	10.14.0
matts & Dunnage to lid under	2.10.0
2000 poor John for provision in going	6.10.0
1. Hogshead of Aquavitae	4-00.00
spades, drugs, Picaxes, Hammers, Hedges, Shovells, Hoes, Iron Crows, mattocks &c	5-00-00
carried over.	229:8:4

Pl. 7.

229. 0. 4	brought over
3. 10 - 0	Barrel of Par. 10. Nails. 3 - 0 - 0
3 - 0 - 0	2 cwt of Oakham. 1 - 0 - 0 5 cwt of pitch at 8s.
5 - 5 - 0	orlap Nailes. 2 : 5 : 0. other sorts. 3 : 0 - 0
3 - 7 - 0	Grindstone 4 axes. Hatchets & 100 Spikes
77. 1 . 2	Boards materials for 8 Shipping boats. 4 cwt netts Cables &c
321 . 11 . 6	

Capt. Smiths Discovery of Virginia

from six to 20 live in a house.

Houshold goods		Tools for a family of six			
1 Iron Pot.	7.0	5 broad Howes	0.10.0	boughlower	5. 7. 8
1 kettle.	6-0	3. Narrow Howes.	0. 6. 8	2 Hammers	2 - 0
1 frying pan	2-6	2 broad Axes.	0. 7. 4	3 Shovels	4 - 6
1 Andiron	1.6	5 felling Axes	0. 7. 6	2 Spades	3 - 0
2 Skillets	5.0	2 Steel Handsaws	0. 2. 8	2 Augers	1.6
1 Spit	2.0	2 Handsaws	0. 10. 0	6 Chisels	3 - 0
Spoons & platters	4-0	1 Whipsaw	0 10. 0	2 Wimbles	0:8
£ 1. 8. 0		2. Hatchets	0 3. 6	3 Gimletts	0:6
		1 Grindstone	0. 4. 0	2 Hand Bills	3 4
		2 Pickaxes	0. 3. 0		6. 0. 2
		Nails	2 - 0 - 0		
		2 howes to cleave palos.	0. 9. 0		
			5 7 8		

Victuals & liquor
8 bl meal. 2-0-0
2 bl Peas. 6-0
2 bl Oatmeal. 9-0
16 g. of Oyl. 3. 6
16 g. Aqua vitae. 2-6
2 gall. Vinegar 2.0
3.3.0

4 - 0 - 0 Cloathing a man to Virginia

fol. 8

for Backward after 1. loaf

Wheat

Now 8.000.000 people at 1 ℔ or 8 b of Wheat, each to be consumed in a year is = 64.000.000 bushels

Now 20 bush to be ye product of an Acre

2. How many Acres, will produce sufficient

ye product	20 = 3.200.000 Acres	
of an Acre.	24 = 2.666.667.	
at	28 = 2.285.714	
	32 = 2.000,000	
	36 = 1.777.777.	
A Bador.	40 = 1.600,000.	ch is but $\frac{1}{25}$ of 40 Mill.
	44 = 1.454.545.	
	48 = 1.333.333.	
	52 = 1.230.769	
	56 = 1.142.857.	
	60 = 1.066,667.	
	64 = 1.000,000.	ch is but $\frac{1}{40}$ of 40 Mill
1 to pay 2 ℔	72 = 0.888.888.	
20 ℔ pay	80 = 0.800.000	ch is but $\frac{1}{50}$ of 40 Mill
30 pay 2 A.	100 = 0,640,000	
30 ℔	120 = 5.33.333	
p Acre.	240 = 2.66.667	ch is but $\frac{1}{150}$ of 40 Mill.

Now 20. bushells is a tolerable Crop of Wheat

& 24. 10.000,000 Arable. 3 m. wheat

3.200.000. Wheat 1 or Barley rest for

Tile ye 16 bushells are ye Mgt Common crop.

	Acres	Bushl	Q
Wheat	3.2 Mill	64 Mill	= 8 Mill.
Barley	1.8 Mill	64	= 8 Mill
Oats	5. Mill	120.	15 M
Peas	1		
Beans	1. 5.		
Hops			
Meadow			
Pasture			
Woodland			
Ponds & Lakes			
Rivers			
Commons.			
Waste } Boggs }			
Towns & M Churches Churchyards }			

Barley 20

Malt Tax at 700,000 at 6 ff Bush = 28000,000.
for food for fowles & other use. 2,000,000

30,000,000

But ye tax has produced 9
a million in stead of 700,000
Therefore I suppose produced 32,000,000
by ye tax & charges
& for food 1 Mill, & ye like for other 2,200,000

34,200,000

at 32 ff acre gives Acres as sown in
Barley some what more ye 1,200,000 Acres.
at 8 mill of prop ly at 4 bushells each 32 Mill

Bush.ts 32 millions in Malt besides food & Exportation
Acres. 1,200,000 acres at ye least
But as ye tax has raised more ye 1,000,000
or ab.t ½ as much again
Then. 48. of Bush of Barley raised.
& 1,800,000 Acres sowed.

(fol. 11)

Oats.

As Oats are sown after wheat & Barley with Clover — & on land it is cannot bear either wheat or Barley.

I cannot conceive but ye more Acres are sown in Oates & in Wheat & barley.

I take for granted 5 Millions.

now Oats produce from 20. bushl to 40 pecks. at a medium 24. pecks, brings much poor land sown with it

5 M: produce. 120 Mill — 15: Val at 7.500.000 pounds

Jersland Dec. 4. 1742. Wheat
66 Stone 11 lb from a plantation
Acre, at 20 Stone to Barrell. is
33 Barrells 8 Stone. & 11 lb pound
Dec. 18. 1742 Hopps 65: & 6. by
one mans growth.

Acres. Hoppes £500,000 will buy a

20,000 – at [illegible]

of a Bag at [illegible]

or [illegible] Consumption 60,000 Bags at £500,000

which is [illegible] Hundred

at 3 p Ton. 60.

Hopp Prices.

[illegible] from 1.8.0 to 24.0.0 ℔ ℔.

℔ Table from 24-0-0 to 1.8.0 contd

1	[illegible]	48	24 —
2	16.00.00.	480	12 —
3	8.00.00	480	8
4	6.00.00	480	6
5	5.00.00	480	4.16 —
6	4.00.00	480	4
7	3.[illegible]	480	3.8.7.
8	2.16.00	480	3
9	2.10.04	480	2.13.4
10	2.8.00	480	2.8 —
11	2.3.0	480	2.3.8
12	2.0.0.	480	2 —
13	1.16.0	480	1.16.8
14	1.14.6	480	1.14.3
15	1.12.0	480	1.12.0
16	1.10.0	480	1.10
17		480.000.	1.8.3
18		480	1.6.8
19		480	1.5.3
20		480	1.4.0.

Lower than this not for good Hopps for
10 Tuting
10 Picking
3 Drying.
1.3.0 Coppersmith & all other Charges of Digging Tuting & Poles & [illegible]

Quantity produce of 20.000. Hills

Hopps.

The produce of the Duty has been once at £7.000 — £15.000 to £84,000, to £93.000 without the Charge of Collection, which always is near the same either Crop small or great.

Now at an Average abt. £50,000 to £60,000

Taking £50.000 for the Medium.

... See the Table below —

at 20 the pound or a load. 8 bags Duty 10 pound

				Acres		£	B.	d.
B. 8	8	20	— 10.0.0	= 5.000.		200000	—	240,000.
7B		18	--- 9.0.0	.. 5.555.		180000	—	144 —
		16	--- 8.0.0	.. 6.125		160	—	128 —
6B		15	--- 7.10.0	.. 6.666		150	—	120
		14	--- 7.0.0	7.143.		140	—	112
		13	.. 6.10.0	7.700		130	—	104
5B		12	--- 6.0.0	8.333.		120	---	96
		11	--- 5.10.0	9.000.		110	---	88
4B		10	— 5.00.00	10.000.		100	—	80
		9	-- 4.10.00.	11.000		90	-	72
		8	--- 4.00.00.	12.500		80	-	64
3.B		7	— 3.10.00.	14.300		70	---	56
		6	--- 3.00.00.	16.666.		60	--	48
2B		5	--- 2.10.00	20.000		50	-	40
		4	--- 2.0.0	25.000		40	---	32
		3	--- 1.10.0	33.333		30	---	24.
1 B		2	.. 1.00.0	50.333.		20	--	16
		1	--- 0.10.0.	100.000.		10	—	8.

A Supposition of 20.000 Acres
B Supposition of 16.000
C — of — 24.000

10 ab. 20,000 Acr
to 16000 but more
I suppose to 24.000
(1738) Acres.

The Accounts on ye other side are pretty exact throughout with these differences only. that ye Common Consumption in plentiful years are 60.m Bags & ye Number of Acres (1738) were above 17.m & probably now (1738) more by 20,000 Acres.

NB. 40,000,000 Acres in England the Hops 2000.

A Review. ye Duty at 60.000 Com. Hundreds & Tuns

at 10 ℔ Hundred gives 150.000. at 3 ℔ = 45000

at 6 Hundred ye acre gives 15.000 Acres.

at 5 Hundred ye acre gives 18.000 Acres

at 4 Hundred - - - - - - 22500 Acres.

at 3 Hundred - - - - - - - 30.000 Acres.

Now 4,000 being a yearly product of ye Acre

~~[illegible]~~

1737. 17.000 acres.

1738 21.000 acres. Duty 86.576.17.6 $\frac{1}{4}$.

1739

1740.

Jan 1738 4 bags (or 10 Hund.) for 22.000 acres = 88.000 = at

& for 21000 = 84.000.

Hops planted at such Distances

6 feet		1210 Hills
6 6 inches		1034
6 7	--	1005
6 8	---	980
6 9	—	955
6 10	--	932
6 11	-	910
7 0	—	890
7 1	---	868
7 2	---	847
7 3	---	828
7 4	---	810
7 5	—	791
7 6	---	774
7 7	---	757
7 8	---	741
7 9	*	725
7 10		709
7 11	---	695
8 0	---	680
8 1	--	666
8 2	---	653
8 3	½ k	640
8 4	100	627
8 5	...	612
8 6	...	600

Lord planted
6,272,640 sq inches.

12 6	2 6 ½ gal	2 inch Distance
3	2 1890	2 —
1	2 6	3
Gallon	6 0 —	4 a to
	4 0 —	5 a Tovel
	3 2 lofs	6
	2 & a pint lofs	7 a Gallon
Gallon	1 gal	10 inches
	4 pints	14 inches
	2 pints	19

N.B. 8160 Lord to a Pint

68 Troy = 56 Aver.

some say 12 oz
more by gr
a oz Troy

68 0 12 4

at 68 to 56 :: 17 : 14

12 Troy ounce
7680 gr.
~~320~~ 10 gr
~~160~~
grain 8000 to a pint.

Now at 8000.
Bushel = 64 pints
in a Bush 512000 grains

12 Bush = 6,144000
¼ 128000
6,272,000

B	G	P		
12.	2	0.	plant an acre at 1 inch	
3.	0.	4	at 2 inch	
1.	2.	6	at 3.	
---	6	--0	at 4.	
	4	0	at 5.	
	2	0	at 7	
	1.	0	at 10	
		4	at 14	
		2	at 29	
		1	at 27	

inches distances

B Gall
12:2 = 98 Gett

98) 6.272 640 (64.000

at 2 = 16.000
at 3 = 7.141.
4 = 4.000
See page 24.

5 Common feed for wheat 2½ pacr. 28 lb

12.6 20 Gallons if plantid at 3 inches
5.6. 9 gallons may be saved. & more

8 9 at 4 inches sufficients then saved. 14 Gallons

10 5 at 5 inches saved 16 Gallons or 2 bush

3/ See Houghton Vol. 1. p 235 No. 87.
from Plat wheat planted at 3 inches depth & distance & produced 30 Qr.
y is 240 Bushells.
Now 3 inch distance ab 10 or 11 Gallons planted on an acre

4/ at 4 inch depth & distance 20 Qr.
160 Bushell. Seed planted. 392 040.

Therefore 4/5 seed seem too much
see above. 5 inches distance

of Grasses. Millers Dictionary

Saint foin or Cockshed Onobrychis

Will last 20 years upon dry gravelly or or Chalky Soil: 3 b on an acre to be sown in March in Rows, in dry weather: ye ye ground may be stirred w the hand plough the roots will spread 2 feet wide.

Not to be sown with Corn. in drills 18 inch asunder yt at similar Distance

not to be fed ye first year but Mowed, & often turned, & quickly Removed for ye Hay lying on ye ground, & hard ye next Crop — See Tullet Notes on preface 254/258.

Mem — to drill at 20 in. distance & each plant at 10 in. — ab. 1 inch deep. — if planted half a bushell sufficient tho 7 b often sown 254/258

Bush Gall

12 : 2 = 98 Gallons: will plant an Acre

at 1 inch distance		6.272640	Feet.
at 2	4 squares	1568160.	
at 3	(9)	696960.	
at 4	(16)	392040	
at 5	(25)	250905	$\frac{15}{25}$
at 6	(36)	174240	
at 7	49	128.013	$\frac{3}{49}$
at 8	64	98010	
at 9	81	77.440	$\frac{40}{100}$
at 10	100	62.726	
at 11	121	51,840	
at 12	144	43560.	

Lists of Wheat reckoned

8000	A Pint	at 56.	62.8			64
16,000	A Quart	14.	$15\frac{1}{2}$			1
64000	A Gallon	1.12	1.	15.		2
512000	A Bushell	7	7	13		8
4096000	A Quarter	56.	$62\frac{1}{2}$			64
20480,000	5 Quarters	448.	500.			512
		2240.	2500.			2560
		1792	2000.			2048

if a Bushell weight $62\frac{1}{2}$ lbs

then a ¼ - - 500

& 4Q - - - 2000

But at 112. to a hundred

is 2240

La Lucern Medica Miller's Dict
or Burgundian Hay

y flowers are purple, Violet or yellow
y Violet y best, y yellow y worst sort.
it has done well. Sown in Autumn
but best sown in April on a light
dry sandy earth, made very fine
Make a drill ½ inch deep. & y seeds
scattered very thin, & covered about
an inch deep, at 2 feet distance
another drill &c to an Acre & no more
to be weeded by a breast plow
but hand Hoed y first year.

Trefoil. commonly so called
is a Medica in y yellow flowers.

Lucern will not do well in England
for y reason in Tull's book of Husbandry
p. 93/200.

Quare Medicago Cylicer.
25

7680 gr. = 1 pound Troy
320 gr = ½ ounce. p. 31

8000 a pint. li. do. or
a Quart = 2. 0. 1 - Troy.
a Gallon - 8. 8. 0.
A Bushell - 69. 4.

But

Clover: Trifolium Miller Dict

1 Trifolium. ye greater Purple called Clover
2 Honey suckle Trefoil common in Meadows
3 White Meadow trefoil.

Clover. lb 10 ounces acre sown. but not too deep.
about ye Beginning of August, bush Harrowed
Not sown with Corn, or Rye grass.
Spring crop best for seed. on Clayey land
Cattle to be fed lb 6 Hay in Racks—

Green apt to hove Cattle

Clover. at 13 gallons of seed = 112:
at 70 lb for 8 gallons

8	70	72	68
4	25.	36	34
1	08.75	4-5	8.5
Gall	13 = 113.75	112: 5	2.1
			112:6

if 112 at 70

---

70 is ye mean wright of good seed 6 ye bushell

68. gives 12	then 112	= 1.0.0	
70 — 14	then 112	= 1.0.9	
72 .. 16	then 112	= 1.6.0.	
68		1.6.6	
70 at 15	then 112	1.6.0	
72	p bushell	1.5.0.	

8	= 68
4	= 34
5 gall	— 8.5
2 qt	... 2-1
13 gall 1 quart	
	112: 6

1840

Quantity of Seed to plant.

32 grains of Wheat. a penny weight
20 penny weight. makes an Ounce
12 ounces makes a pound Troy

32	24
640	480
7680	5760

68 Troy = 56 Aver dupoiz. 1 penny Mon. D. Wheat
× 7680 ~~this should be by 24 & gives~~ 5760
68.
522240 grains Common Dr. heaviest Com. 391.680.

But good wheat weighs from 60 to 64.
then I suppose above Statute Measure
$\frac{24}{20}$ w. Tho a Bushell will plant an Acre at 4 inch Distance
or $\frac{32}{20}$ } will plant 2 Acres at 5 inch distance

Common grain or $\frac{32}{20}$ w		Best grain of $\frac{24}{20}$ w	
Bushell	522240	Bush	392040
½ Bushell	261120	½ B	196020
¼ or Peck	130560	¼ Peck	98010
Gallon	65280	Gallon	49005
Pottle	32640	Pottle	24503
Quart	16320	Quart	12251
Pint	8,160	Pint	6,126

Now a pint is said to be = a pound Troy

now if 7680 grains = 1 Troy or 5760 a pint
15360 = a Quart 11520 a Quart
30,720 a Pottle 23040 Pottle
61440 Gallon 46080 Gallon
122880 Peck 92160 Peck
243760 ½ bush 184320 ½ bush
* 487520 Bushell 368640 Bush

NB. 1-0½ = pound Troy 30 See p. 32.

from pages 1. 2. 3

Distances of

An Acre
Contains
4. Roods.
160 Sq. Rods.
4840 Sq yards
43560 Sq feet
6.272.640 Sq inches.

at 1 inch Distance	6.272.640 Sq plantid.
at 2 inches	1.568.160.
at 3 —	0.696.960.
at 4 bushells	392.040
at 5 —	250.905
at 6	174.240.
at 7	128.000.
at 8 peck	098.010
at 9	077.440
at 10 —	62.726
at 11	51.840
at 12 or a foot	43.560
at 13 inch	37.116.
at 14 inches	32.003
at 15	27.878
at 16 pottle	24.502
at 17	21.704
at 18 foot ½	19.360.
at 19 —	17.375
at 20	15.681.
at 21	14.223
at 22	12.960
at 23	11.855
at 24 or 2	10.890
at 2 foot 2	9.279
at 2 foot 4	8.000
at 2 foot 6	6.969
at 3 foot	4840
at 4 foot	2722
at 5 foot	1742
at 6 foot	1210
at 7	889
at 8	680
at 9	536
at 10 foot	435

at 11	360.
at 12	302
at 13	260
at 14	222
at 15	193.
at 16½	160
at 18 f	134
at 20	109
at 22	90
24	75
27	60
30	48.
33	40

4 × 40	= 160 Rod
5 × 32	= 160
6 × 27	= 162
7 × 23	= 161
8 × 20	= 160
9 × 18	= 162
10 × 16	= 160
11 × 15	= 165.
12 × 13⅓	160

lb oun
* 1 : 0½ = A pint

7680 gr = a pound
½ oz - 320 at 32
8000. gr = Pint.

Mr Ward always found a pound Avo
to weigh 14 oz. 11 dr. : 15½ gr. or 1 lb. : 2 oz. : 11 dr. 15½ gr.

Then 68 lb. 0 oz. 12 dr. 4 gr. : = 56 lb. Averdupois

6 lb. 0 oz. 18 dr. 5½ gr. = 5 lb. Averdupois
17 lb. 0 oz. 3 dr. 1 gr. = 14 lb.

Then 7680 = 12 oz. Troy
1280 = 2 oz. more
8960 = 14 ounces
352 = 11 dr.
15½ = 15½

9327½ = 14, 11, 15½

But 68 pound Troy = 522240
And 56 pound Avo = 522240
Therefore Mr Ward acc. Wrong

Now 56 lb. : or 522240 gr. Standard.
68 522240
: : 100 only diff.

lb 56 = 56
oz 12 : 9 : 4
28 2 . 6 . 16
2 . 16
Gowin 12½
67 . 10 . 16
1 . 8
68 0 4
1 . 4
68 . 0 . 5 . 4

lb 56 . 12 = 28
s. 2 . 11 . 12½
in stead of 15½

for 68 : 522240
5 . 4 gr. 12 . 4
3 64
92

Jr. Jonas Moore. p 13 e or gw

Wheaten Meal 7 Ao. = 8 - 6 - 4 - 0 Troy.

Thus 56 Ao = 68 - 1 - 12 - 0 Troy

Thus 56 = 817 - 12 = 16352 dwt.

~~ye 13 = 24548 gr.~~

16352
32
32704
49056
523264
522340 / 56
gain 924 gr

ch
W is exactly

1 . 2 . 11.

56 . ~~14~~ 656

8 . 8.

30 . 16 10 : 960 80. 5

67 . ~~12~~ 16.

26 - 8

13 . 4

~~67 . 4 . 15 . 12~~

1 . 2 : 11 . 10½

56

9 . 4

2 . 8 . 16

67 - 10 . 16

26 . 8

68 . 0 . 2 . 8

1 . 4

2 . 8

2 . 8 8

2 . 8

2 . 8

~~2 . 8~~

68 . 0 . 15 . 4

560

28

56 840
12 28

24 / 868 / 36
72
148
144
4

or d

67 . 10 . 16.

116 . 4

68 : 0 : 12 . 4

This was enough

520.000 gr to a bushel

~~523000~~

523264 gr to a bushel

65408 to a bell

~~8 . 136.~~ or 8 . 160

Sr Jonas Moor Water

1 ounce Troy in inches 1.89490 } inches & parts
1 Do Averdupois 1.72556 }

1 pound Troy 22.73683 } Solid inches
1 Do Averdupois 27.6090 }
76 Troy
62.5882 } Solid foot.

as 68 : 56 :: 76 : 62 $\frac{\cdot\cdot\cdot\cdot}{5882}$

Table of ounces Troy. in inches & pts.

1	1.89490
2	3.78980
3	5.68470
4	7.57960
5	9.47450
6	11.36940
7	13.26430
8	15.15920
9	17.05410
10	18.94900
11	20.84390
12	22.73880

Table of ounces Averdupois

	In. pts
1	1.72556
2	3.45112
3	5.17668
4	6.90224
5	8.62780
6	10.35336
7	12.07892
8	13.80448
9	15.53004
10	17.25560
11	18.98116
12	20.70672
13	22.43228
14	24.15784
15	25.88340
16	27.60896

34-16

Bush. a Cubic foot weighs: Mr Boyle

60.12.0	of Wheat	48.8.0	
36.0.0	White Oats	29.8.0	
64.0.0	White Peas	50.8.0	
48.0.0	Barley	41.2.0	
36.0.0	Malt 2 Mottle	30.4.0	
64.0	Fitch Beans	50.8.0	
	Wheat Meal	31.0.0	
	Rye Meal	28.0.0	
75	Pump Water	62.8.0	
	Sea Salt	43.12.0	
	Wood ashes	58.5.0	

12. Inches
144 Inches
1728. Cubic

24 grains.
3 Scruples
8 Drams
16 ounces.

~~9760~~ 24
16
So 384.

A Cubic inch of Wheat. 0:37628
2.65757. Magnitudo.

272¼ Cubic Inch = a Gallon
9:13.12 of Water = a Gallon
A Vessel 6:48 each side. 6:48
6.48
5184
2592
3888
419904
648
3359232
1679616
2519424
27.097792

272.09
2176.72
8

272.25
8
2178.

Inches
1728 Cubic foot
2178 Bushell

1728
432
7776.

2150. Bush

A pint	= 1 : 0 : 12 : 4		
A qt	2 . 1 . 4 . 8		
A pottle	4 . 2 . 8 . 16		
A Gallon	8 . 4 . 17 . 0		
A peck	16 . 9 . 14 . 16		
A Foost	33 . 7 . 9 . 8		
A bush	67 . 2 : 18 : 16		

a qt lb grains at 24.

12 oz
12 pt.
20
56) 244 . 4

grains at 32.

8 . 4 . 17 . 0
16 . 9 . 14 . 0
33 . 7 . 8 . 0
67 . 2 . 18 . 16

Troy 36

Bud ~~a bush~~ 68 . 0 . 12 . 4 grains = 56 Averdupois

Instead of 8 Gallons. Suppose ~~[illegible]~~ 8 pinch

	67 . 2 . 18 . 16	
½ pint	6 . 2	
	67 9 . 4 18	
¼	3 . 3 . 1	
	68 : 0 : 7 . 1	

Grains to a Bush

520.000.
260 000 Foost
130 .000 Peck
65 000 Gallon
8.125 Pint.

8.000 grains to a pound Troy : & pint . 0 . 0 . 12 . 4

68 Troy neer 56 Averdupois viz 68 . 0 : 12 . 4.

544.000 grains to 56 Averdupois

	grains
56 Av:	544000
28	272.000
14	136.000
7	68.000
1	9.715

	grains
48	480.000
49	488.000
50	496.000
51	504.000
52	512.000
53	520.000
54	528.000
55	536.000
56 Av	544.000

	grains
57 Av	552.000 gr
58 Avoir	560 000 gr
59 Avoir:	568.000 gr
60 Avoir	576.000 gr
61 Avoir	584.000 gr
62 Avoir	592.000 gr
63 Av	600.000
64 Avoir	608.000
65 Av	616.000
66 Av	624 000
67 Av	632.000
68 Av	640.000
69	648.000
70	656.000
71	664.000
72	672 000.

36

9715 grains
4 drams
9719 ounces
9720 lb

to a pound Averdupois

gr. 24.
3 scruples 72
8 drams 156
16 ounces 2496

9720 grains
3 scruples
8 drams
16 ounces
25 pounds
25 5 pounds
56 28

5760 = a pound troy. at 24 gr. = 7680 at 32 grains.
64 a bushel
23040
34560
368.640: add 4 to make 68
23040
391.680 grains to such bushell.

491520 to a bushel of 64 troy.
30720 add 4 to make 68 —
522.240 grains to such bushel.

Divide each by 56. at Averdupois Bushel

6994 to a bushel Averdupois — 93.25 to a pound Averdupois.
grains. 437 to an ounce 16 — 582 to an ounce.

A table to a pound

437
874
1311
1748
2185
2622
3059
3497
3934
4371
4808
5245
5682
6119
6556
6994

1) 437 5 Averdupois
2) 875 — to an ounce
3) 1312.5
4) 1750 — × ¼ lb.
5) 2187.5
6) 2625 —
7) 30625
8) 3500 ½ a pound lb
7000 gr. = 1 Averdupois

582 oz. = 72 ¾ dr. : 24 grains
72 scruples 3
576 drams 8
9216 ounces 16
516.096 pounds 56
1,032.192 2 bushels
2,068.384 4 bushels
4,136.768 8 bushels 2 pecks

520,000 grains to a bushel of 56

552960 of 56 bushels
580598 of 63
589814 of 64
590030 of 65
668246 of 66

437
218½ 5
109¼ 25
54.5

54½ drams.
38 grains.

Lib 32

A pound Averdupois = lb oz dr s. : Troy.
1 : 2 . 11 . 15 ½ :

1	1	2	11	15½
2	2	5	2	31
3	3	7	14	14½
4	4	10	5	30
5	6	0	17	13½
6	7	3	8	29
7	8	6	0	12½
8	9	8	11	28
9	10	11	3	11½
10	12	1	14	27
20	24	3	9	22
30	36	5	4	17
40	48	6	19	12
50	60	8	14	7
56	67	12	3	4

28	34	0	6	2
14	17	0	3	1
7	8	6	1	12½

grains at 32

grains at 24

1	1	2	11	15½
2	2	5	3	7
3	3	7	14	22½
4	4	10	6	14
5	6	0	18	5½
6	7	3	9	21
7	8	6	1	12½
8	9	8	13	4
9	10	11	4	19½
10	12	01	16	11
20	24	3	12	22
30	36	5	9	9
40	48	7	5	20
50	60	9	2	7
56	68	0	12	4

56	68.	0.	12.	4	A bushell
28	34.	0.	6.	2	A Peck
14	17.	0.	3.	1	A peck
7	8.	6.	1.	12 1/2	A Gallon
3 1/2	4.	3.	0	16 1/4	A Pottle
1. 3/4	2.	1.	10	8 1/8	A Quart
7/8	1.	0.	15.	4 1/16	A pint.

at 24 Grains to a d.

480 a p.d. Ounce

5760. to a pound

345600	60 pound
46080	8.
288	12 w.
4	48

391.972 Grains to 56 cavendupois

24. gr.
20 pro.
12. ounces
1. pound troy

A 32 grains to a d.

32
640
7680

460.800	60.
61440	8
384	12.
4	
522.028	

d. 391.972.
d. 1.520
58
391.972
760
297732
2800
400.612

Hopps.

ye Duty 1738. 86.576.17.6½
No. of Bagg 82.454 ℔ 42 pounds.

N.B. 1.1.0 is ye Duty payable for a Bagg. 2:2.0.
8.8.0 ye Duty for 20 Hundred or a load

I suppose ye people of England to be 8 Millions.
8 Million to consume annually ½ of Hopps
16. Millions of pounds = 142 857 1/7. ℔.
142.857 ÷ 2 ℔ = 57143 Baggs.
at 1.1.0 ℔ Bagg = 57143 } = 60.000 Excise
add 2857 }
for the sum of 60.000 ye Duty granted.

Exported annually to Ireland 6000 Bagg
So ye middle growth 63143. baggs.
when 64000 Bagg or more ye a plentifull growth

---

8 Mill at 2 ℔ Head. the Exportation about
2 : 64.000 baggs
1½ 48000
1 ... 32.000
½ 16.000.

---

for Malt at 4 bush ℔ head ye Hopps
½ Hopps

Hopps

480.000 will buy ye whole product of Hopps each year - supposing no Stock in Hand.

if 160.000. — 12 ~~lb~~ 1.2.2 ye pound.

32.000	6	1.1	Scarce yrs
48.000	4	9	
64.000	3	6½	middling year
80,000	2.4.0	5	Plentifull years
96.000	2.0.0	4½	
112.000	1.17.4	4	

Hops have been sold for 1.8.0 ye Hundred & in a very Scarce yr for 14.14.0 ye Hundred

Enquiry how many Acres.

64000 Bags bring ye Medium

Item	
1 Ct.	160.000.
2 C	80.000
1 Bag	64.000.
2 Bags	32.000
3 Bags	24.000
4 Bags	16.000
5 Bags	12.800
6 Bags	10.666
7 Bags	9.147
8 Bags	8.000.

a load on an Acre.

at 80.000 Bags

1 Bag	80000 Acres
2 300.	40,000
3 7½	26.666
4. or 5	20,000. -
~~H~~	21.000 : 84000

Therefore in ye year 1738 either lay ye 10 ye acre or not so many as 21.000 acres.

Suppose but 40.000 bags there Hopps will be worth 8. ~~[illegible]~~ Hundred

Aug. 26 1739

Troy 68 . 0 . 12 . 4 = 56. lb troy

816 ounces . 12 . 4 — 437½ = to an Ounce
20 + 12 — 7000 69 gr to a Pound
16332 = Dw. + 4. — 56 pound = 392.000 grains
24 + 4
391972 . —
~~392000~~

See fol book

Therefore 68 . 0 . 13 . 8 = 392,000 grains

34 . 0 . 6 . 16 = 28 lb
17 . 0 . 3 . 8 = 14
8 . 6 . 1 . 16 = 7 ounces
4 . 3 . 0 . 20 = 3½ or 56

18 + 5 + 1/24
24
77
36
437 . ½

1 . 2 . 11 . 16 = 1 or 16 ounces
7 . 5 . 2 . [illegible] = 8 ounces
3 . 12 . 2 . [illegible] = 4 ounces
1 . 16 . [illegible] = 2 ounces
0 . 19 . 5 . ½ = 1 ounce

Correct. 68 . 0 . 13 . 8 Troy
56 . — 392 . 000 gr
at 24 gr. to Dw Troy
437½ to an Ounce A

NB not 392 000
But 391972

68 . 0 . 12 . 4

Oxen fat. at several prices.

Qr	Stone	at 18.	at 20	at 22	at 24	at 22
10	40	3.0.0	3.6.8	3.13.4	4.0.0	4.6.8
11	44	3.6.0	3.13.4	4.0.8	4.8.0	4.15.4
12	48	3.12.0	4.0.0	4.8.0	4.16.0	5.4.0
13	52	3.18.0	4.6.8	4.16.4	5.4.0	5.12.8
14	56	4.4.0	4.13.4	5.3.8	5.12.0	6.1.4
15	60	4.10.0	5.0.0	5.10.0	6.0.0	6.10.0
16	64	4.16.0	5.6.8	5.17.4	6.8.0	6.18.8
17	68	5.2.0	5.13.4	6.4.8	6.16.0	7.7.4
18	72	5.8.0	6.0.0	6.12.0	7.4.0	7.16.0
19	76	5.14.0	6.6.8	6.19.4	7.12.0	8.4.8
20	80	6.0.0	6.13.4	7.6.8	8.0.0	8.13.4
21	84	6.6.0	7.0.0	7.14.0	8.8.0	9.2.0
22	88	6.12.0	7.6.8	8.1.4	8.16.0	9.10.8
23	92	6.18.0	7.13.4	8.8.8	9.4.0	9.19.4
24	96	7.4.0	8.0.0	8.16.0	9.12.0	10.8.0
25	100	7.10.0	8.6.8	9.3.4	10.00.00	10.16.8
	110	8.5.0	9.3.4	10.1.8	11.00.00	11.18.4
	120	9.0.0	10.0.0	11.0.0	12.00.00	13.00.00
	130	9.15.0	10.16.8	11.18.4	13.0.0	14.0.8
	140	10.10.0	11.13.4	12.16.8	14.0.0	15.10.0
	150	11.5.0	12.10.0	13.15.0	15.0.0	16.5.0
	160	12.0.0	12.16.8	14.13.4	16.0.0	17.6.8
	170	12.15.0	13.13.4	15.11.8	17.0.0	18.8.4
	180	13.10.0	14.10.0	16.10.0	18.0.0	19.10.0
	190	14.5.0	15.6.8	17.8.4	19.0.0	20.11.8
	200	15	16.3.4	18.7.4	20.0.0	21.13.4

Suppose an Ox, weight 4 C. 100 Stone
Cost 10 li. sold at 2 li. stone y whole

1 foreq^r	25.6	affinity y other		24.2
2 foreq^r	26.4			23.4
	52.2			47.6
				52.2
				100.

	st	lb			
Neck	2	6	at	2¼	4.1½
Sticking pieces	2	2	at	2¾	4.1½
Mouspieces	2	4	at	2¾	4.7
2 Marrow bones	2	0	at	2½	3.4
Chuck top & bo.	4	4	at	3	9.0
forend & brisk	1	6	at	3½	4.1
middle Rib 3 ribs	1	6	at	3½	4.1
Griffle rib 3 l.	2	0	at	3¼	4.4½
Navel pieces	2	4	at	3½	5.10
Short coasts	2	0	at	3	4.6
Tongue	1	3	at	3½	3.2½
Skin	1	1	at	1½	1.1½
	26	4			2.11.10½
Rump	4	0	at	3	8.0
Sirloin	2	6	at	3½	6.3
great Clod	4	0	at	3¼	8.8
little Clod	1	7	at	2½	3.1½
Leg	1	6	at	2	2.4
1 Ribs	1	4	at	3	3.0
2 R.	1	7	at	3	3.9
3 R.	1	7	at	3	3.9
Flank	2	2	at	3½	5.3
Kidney	2	2	at	3	4.6
	24	1			2.8.7½
	50	5			5.0.5½

25 Stone	at	3½	
12 Stone	at	3¾	
36 Stone	at	2¾	
10 Stone	at	2½	
8 Stone	at	2½	
3½ Stone	at	2½	
2½ Stone	at	1½	
2½	at	2	

25	at	3½	2.16.4
50	at	3	5.0.0
10	at	2¾	0.18.4
10	at	2½	0.16.8
24	at	2	0.2.8
2½	at	1½	0.2.0
2	at	2½	0.3.0
			9.10.0

at 4	10.8	
at 4	7.4	
at 4	10.8	
at 3	3.9	
at 2	2.4	
at 3	10.6	
at 3	4.6	
at 3	4.6	
	2.14.3	

Bulls · Cows Oxen Calfs.

Nov. 15th

Weight of an Ox at Newby near Ripon. Yorkshire

	lb			lb	
one forequarter	29.4½	One hind ye	—	24.2	at 14 10/20
ye other	28.5	ye other	—	24.4	ye stone
	57.9½			48.6	
	48.6			57.9	
	} 106.1½			} 106.1½	

Sum of ye 4 Quarters	106-1½			lb	lb one
Tallow	19 —		at 8 ye stone	185.3.2	
Hide	12 —			33.2.0	
Head feet liver lights & kidneys	10.11.			21.0.0	
				18.7.0	
Blood & entrails by computation	23 —			40.2.0	
	170.12½			298:6.2	

Observations on ye Above

Houghton N. 110

The forequarters are 1/6 Heavier ye ye Hind Quarters.
The Tallow more 1/6 & lighter 1/5 of ye 4 Quarters. ou 2.5½
The Hide. about 1/9 of ye 8 Qr.
The Head feet Liver lights & kidneys. ab. 1/10.

An Ox sold at Bury, for 30. fed w Cake & w barrs. Hom 110

Observation on ye Ox of 100 stone at 8 lb ye stone

	lb.			
Little Clod	2	0 or 8	15	1/50
Great Clod &	4	0 or 32		1/25
Rump &	4	0 or 32		
Chuck 2/25	4	4 or 36	with bone & fat	
Surloin	2	6 or 22		
3 Ribs	5	4	44	the surloin 1/2 of 3 Ribs.
most all the fat	2	2	18	
Skin	1	1	9	
			45	

Lev. 1 p. 63.

Of Sheep

a fat Sheeps Carcass, to ye live wright as 5/8

a lean Sheeps Carcass, to ye live wright as 3/5.

The fatter ye Sheep, ye lighter ye wtrails

More Blood in a lean ye in a fat Sheep

---

56. or 14 a Quarter ye Middling size.

90 Sometimes, sometimes more

I killed a Sheep of my own fatting wch weighed 23 lbs or 92 lbs

the Shoulder weighed 14. } they were ye cut larger.

ye Leg weighed 19. }

or rather lighter

Shoulder	7½	Leg	8
Neck	4	loyn	5
breast	3½		
	15		13

15
13
28

Shoulder	14	Leg	19
Breast	4	loyn	5½
Neck	4		
	22		24½
			22
			46½
other side			45½
			92

---

56. or 14 lbs		19	20
Shoulder	7½	10	10½
Neck	4	5½	6
breast	3½	5	5½
loyn	5	7	7½
leg	8	10½	11
	28	38	40½

Cattel

Water of ye Calcarious Kind. (wch is Calky) proceeding from ye limestone cures ye Moor Evill. or ye flux of ye Belly & corresponds to ye Dysentery in Man. whereby Cattle so Spend themselves in a little time, yt they fall away to Skin & bone & so dye away, unless prevented wch is certainly done by giving them dry meal & fastening them to drink of this water only. Plott Oxon. p. 49

Q if Chalk put into water will not do as well or Rather Lime Water. ~~Q. Temple.~~

---

ye Meal of Horse beans. good [illegible] 9.

Sheep.

Herbs good for them.

Melilot
Clover
Sea Calf
Cinquefoil
Broom
Pimpernel
White Henbane

Herbs bad for sheep

Spearwort } ophioglossum
adders tongue }
Fennywort
Knotgrass
Mildewed grass
or any weed
growing from
overflowing
of Waters

Herbs. Grasses & corn. Plot Oxfordshire p. 366.

Red / White } Lammas Wheat Black / White } Rids Barley / Peas / Oats } p 153/366

1 Triticum spicâ muticâ rubrum, caulo item rubro
Red stalk wheat — seldom smutty, but uncertain, & not good for bushes.

2 Triticum spica mutica albicante, granis rufescentibus
white sand red wheat, white Cone, or mixt Lammas.
yielding 20 for 1. & most eligible corn in ye Vale 154/366.

3 Triticum spica Aristata Glumis hirsutis.
The long Cone wheat, best for rankest Clay land 154
not subject to lodging, nor Mildews, best for enclosures
but its flower coarse. it is sometimes mixt wth other wheats.

4 Triticum multiplex sive spica Multiplici.
double eared (or finger wheat) wheat. 155
not advantagious to ye Husbandman, Now out of repute

Hordeum distichum Moscox } sown & returned into ye Barn
Rathripe or Patney Barley } in 8.9. or 10 Weeks. 155.
Barley & Hanley grey 2 Red shanks for fresh new broken land
3 the Valo grey for strong land. 4 Hampshire kids for Pulse
5 Small rath ripe for poor Gravelly. 6 Cotswold for lower land.
Vetches. in deep Clay — Gore, & pebble Vetch, in fold mixt ye rathripe
Dills & Fourils. in poor stone brash, & is a good pod-ware for Cattel.
Grasses. Clover grass — 1st forth. Ray grass much commended
mixt wth Melilot trefoil. & sometimes Nonesuch.
(Trifolium agrarium Dodonei) 157.

Fœnum Burgundicum carulum L'Obelii. or
Medica legitima Clusii & Dodonei. Lucern. 157/366.
§ 3.

Sowed in Oxfordshire

Cathamus Sativus sive Crocus. ye bastard Saffron 158/300

Carui. Carraways sown in March. Were sowed ye 2d year

Bonios, white, ye more delicate & of better flavour

as. Goosberries, Grapes, Strawberries, Rasps. 158

from ye Hopp Observations only ye all
17.19.0. on ye other side of Monmouth
11 Tyth Hoppgarden of an Acre & Hortatio
18.10.0 where no tyth was paid
without tyth
18 li is from 10 li to 12 li & more.

	£ s d		
	2:7.0: of Hopps		
40.	5.0.0	loss.	13.0.0
50	6.0.0	loss	19.15.0
3.0.0	7.10.0	loss.	10.10.0
3.10.0	8.15.0	loss.	9.5.0
4.0.0	10.0.0	loss.	8.0.0
4.10	11.5.0	loss.	7.15.0
5.0.0	12.10.0	loss.	5.10.0
5.10.0	13.15.0	loss.	4.5.0
6.0.0	15.0.0	loss.	3.0.0
6.10.0	16.5.0	loss.	1.15.0
7.0.0	17.10.0	loss.	0.10.0
7.10.0	18.15.0	Gain.	0.15.0
8.0.0	20.0.0	gain	2.0.0
8.10.0	21.5.0	gain	3.5.0
9.0.0	22.10.0	gain	4.10.0
9.10.0	23.15.0	gain	5.15.0
10 —	25 —	gain	7.5.0

Hopps.

Merchants acc^t of his Brother John Merchants Hopgarden containing One Acre, its produce was. 2:2-0 or one bagg. At Hartridge in Cranbrook parish Cont Kent. 1735.

Picking. 3 times at 7 to each time. 21. persons at 8 a day each by time 3 days. by is 2. each picker, in all	2-2-0
Duty - - -	1-1-0
Rent of ye ground. 1. Dung. 1. 2. 0	2-2-0
1/3 of 4000 hoppoles at 9. 10. 0 for each 1000 — 18. 6. & 1/3	6.0-0
Workmanship . - - -	3.0-0
price of Bagging. 15. at 3½	1.5.0
& ye use of ye Poles - - -	
Charcoal - -	0 10-0
Drying & beer for all . . .	0, 6.0
bagging & drying	10-0
2 Poporullers 4 days at 1.4.	9.8
Carriage & selling. 2. 6. City 9.	13.4
wardes wrastbour. 1. [illegible]	17.19

59

from St Jonas Moore. Capitii Natitia.

French foot	English.	Roman	Roman
1.068	1.000	.967.	972.

Vaubans Royal Tithe. p 57.

Normandy contains 1740 sq/ Leagues

A League 2282½ Poises long

A square League 5.209.806¼ Poises = 4688.82½ Arpents

A ~~perch~~ 100. Square Porches = to an Arpent

And 20 Square feet = to a Porch

& foot 12 Inches –

French A Table Engl

1.068 – 1.000

6 feet. A Poise.

6.408 .. Poise

1.068 a foot

20 a porch

21.360.

21.360

45624.96 a Square porch.

by 100 sq Porches to Arpent

A French Arpent 45625 English sq feet

A English Acre 43560 English feet

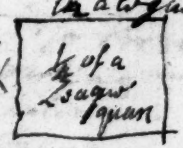
So an Arpent. feet, 2065. More an Acre

Normandy reckons by Acres Squares

So there a Square Leagues. ~~1740~~ = 2885½ Acres.

And 1740 – 5.021.640 Acres.

the a League



for 721⅜ = 1172 Arpents 14½ Porches at 20 sq feet to a Porch

2885½

4688.57.

Of Calves Opinion for p. 43.

A Calf falling y beginning of May
at Midsommer being 8 Weeks old — 1-0-0
at Novemb. 18 weeks at 4 6-0
To May Day. 16. at 7 9-4
One year Old 1.15.4

from may to Mich. 21. at 4 ... 7.
to May tide y 2. year. 30. at 7 ... 17.9
2 years old 3.0.0

to Michmass 21 weeks at 6 ... 10.6
To May tide y 3. year. 31. at 8. 1.0.8
at 3 years old 4.11.2

To Mich. 21 weeks. at 8 ... 1.1.0
To Buttlt 26 weeks at 5. 6 ... 1.19.0
at Lady day 4th y. 7.11.2
or after this time his growth
work will pay for his keeping
till Shallfedding —

To Breed		to Buy	Value
a yearling	1-15-4	8	3.17.6
2 yearling	3.0.0		3.5.0
3 yearling	4.11.2		4.15.0
4 year Steer	7.11.2		7.10.0

Weight at

1. year	112	1.15.4	= 1.11½ stone
2	224	3.0.0	= 2.6.
3	336	4.11.2	= 2.2
4	448	7.11.2	= 2.8
5	560	8.10.0	= 2.5
6	672	9.0.0	= 2.3
7	784	9.10.0	= 1.11½
8	100 stone 896	10.00.00	= 2.0

Supposing a weight above 100 lbs
a price should be — — £ s d
at 8 years old. w 896 — at 2 10.00.00
7 years. 87½ 784 at ½ . . . 8.15 —
6 y. . . 75 — 600 . . . 7.10 —
5 y. . . 62½ 500 . . . 6.5 —
4 y. . 50 400 . . . 5-0 —
3 y. 37½ 300 . . . 3.15 —
2 y. 25 — 200 . . . 2.10
1 y. 12½ — 100 . . . 1 5 0

~~Value of Calf at 8 weeks - 1.0.0~~
~~a year Keep at 2 - 8.0~~
~~1.8.8~~
~~2 year Keep at 4 - 1.[illegible]~~
~~5.2~~
~~2.10.4 2.[illegible]~~

Value of a Calf at 8 Week. 1.0.
52 Week at 3 - - 1.
1.13
2 year at 4½ - - - 19
2.12
3 year at 6 - - - 1.6
9.18
4th yr at 6 - - - - 1.6
5 4
5 yr at 6 - - - 1 6
6.1
6 yr at 6 - - 1
7.1
7 yr at 6 - - 1.
9.
8 yr 1.0
[illegible]

Computation of a Bullock of 80
640 lbs. at 2

1 fore q[illegible]	20.6	1 Hind quarter	18.4
2 fore q[illegible]	21.4	2 Hind qu[illegible]	19.2
	42.2		37.6

				Leg & Hind	24. 4.6
Shin	8. at 1½	1.0		Rump & Buttock	
Neck	17 at 2¼	3.2¼		& Lands	72. 18.4
Marrowbones	13 at 2½	2.8½		Clod	25. 4.9
Sticking piece	15 at 2¾	3.5¼		H. & Surly	33. 8.3
Mouthpiece	16. 2¾	3.8			1.15.60
	69.	14.0.			2.4
Brisk. Brush & Fifth Rib	57	14.3			3.19.10
	52	15.9			
		2.4.0			

Ox w. 100 stone [illegible]
at 2 ½ stone [illegible]

1 forequ.	25.6	52.2
2 forequ.	26.4	
1 Hindqu.	23.4	47.6
2 Hindqu.	24.2	

Heaviest forequarter
& lightest Hindquarter

26.4	50	& Contra	
23.4		25.6	50
		24.2	

N.B. under 3 by 6 for
at
in 6 forequ. — 85 - at
in 6 Hindqu. — 29. at
at or above 3.
Jack forequ. — 127. at
Jack Hindqu. 164 at

& Whole 5
10

forequ. [illegible]

Shin .. 9. at 1½	1 1½	
Neck. 22 at 2½	1½	
2. Marrows bones 16 at 2½	3.4	
Sticking piece. 18 at 2¾	4.1½	
Mouth piece 20 at 2¾	4.7.	
Coarse pieces. 85.	17-3½	

Chuck top & tora
36 at 3 9 - 0
Short Coast 16. at 3 4 - 0
Griffler Rib 16. at 3½ 4.4
at 3 bones

middling. 68 - ..	17.4	
forerib 2 bones. 14 at 3½	4.1	
Middle Rib 2 bones 14	3½ 4.1	
Naveltpiece 20	3½. 5.10	
Brisket ..... 11.	3½ 3.2½	
Boil piece 59.	17. 2½	

Hind quarter at 2
Leg. 14 at 2 — 2.4
Little end .15 - at 2½ 3.1½
Rump - 32 at 3 8 —
Kidney 18 at 3 4.6.
1 Round 12 at 3 - 3.0
2 Round 15 at 3 - 3.9
3 Round 15 at 3 3.9
Great end 32 at 3½ 8.8
flank 18 at 3½ 5.3
Surloin 22 at 3½ 6.3.
Hindqu. 2.8.7
forequarter 2.11.10
5.0.6
6 st
405 = 50.5 = At 3.
3 st
1215. 101.3 in
at

forequ.
Coarse — 85 - 17.3½
Middle — 68 17.4
Fineabest .. 59 . 17 2½
212. 2.11.10

67

Jn. K. [illegible] time
a penny silver $\frac{1}{20}$ of an Ounce.

Edw. 1. Penny = 32 grains of Corn
& 20 penny ꝑ = ounce
& 12 Ounces = Pound troy

9 Edw. 3. A penny. & 26. pt. of an Ounce Troy
2 Hen 6 . . . . . 32 pt of an Ounce
5 Edw 4 . . . . . 40 pt
26. Hen 8 . . . . . 45 .
2 Eliz . . . . . 60. & 62. to ye Ounce

Graves acc. --- | Dr Stephen Hales. 437½

438 grs to an Ounce A. | 437½ to an Ounce Averdupois

to a Roman ounce

5256. to a Pound of 12 ounces | 5250 — at 12 ounces 5250 | 1750. to a pound

& Vespasians Congius | at 16 ounces 7000 grains

10 Pound 52560 gr | Vespasians Congius 7. ½ Eng

Consular Donarius | gr

62 4/7 gr | Rockford 62.5 N

Roman Ounce 438 | --- 437.5 grains Eng

Roman pound 5256 | --- 5250 Grains Engl

Congius ... 52560 | 52500

10 Roman pounds | pound 7.5 or 7.8 ounces

for 438 × 12 = 5256. | about 7000 grains to A pound

7. 49000 Averdupois

½ 3500

52500. as above

Troy Ounce 480 | Troy Pound 5760 gr

Paris Ounce 472½ gr English | Paris pound of 16 ounces 37560

& Congius 1113¾ of Paris ounces. | Sir Mox Fol & Congius holds 9 Gall at 230 to ye Gallon

Water

	Cubic inch
Troy Ounce	1 - 89190
Aver Ounce	1 . 72558
Troy pound	22 . 7368
Aver. pound	27. 6090.

76 Troy } 1728 Aford foot.
62.588 lb }

70 a
6
~~132 . 648~~
~~11 369~~
~~144 . 012~~
60

168: 0: 12: 4gr. = 56A. 1A = 1. 2: 11: 15 ½

56 . 56
12 . 4 . 12 . 4
68 . 0 . 12 . 4

76 × 22.7368
1364208
1591576
1727.9968

Bushel
75 27,6090
7
193.2630
½ 1380.45
2070.0675

but a Bush: 2150. is allowed

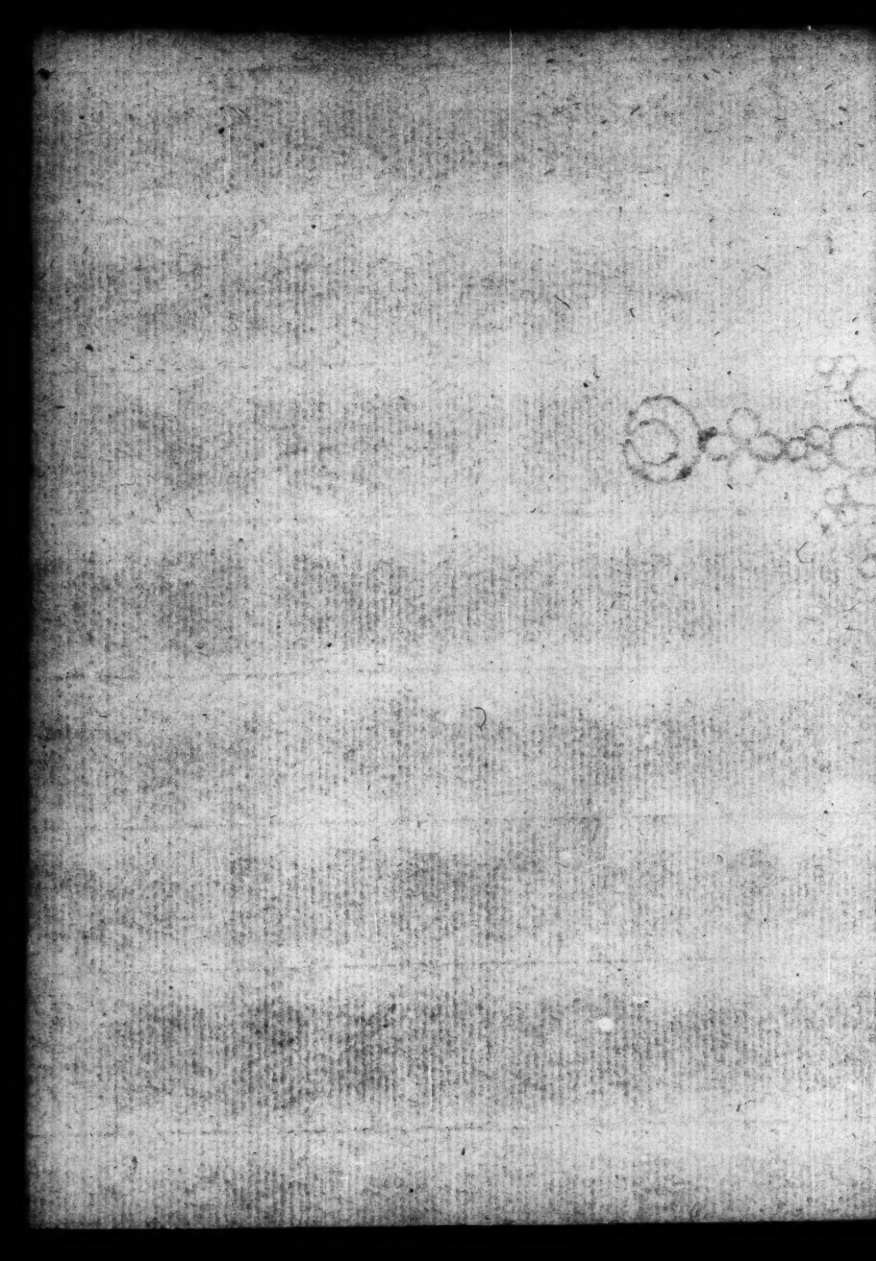
62
500
90
25,
5
62.588
8

276090
552180
1656540
17117580
138045
17255625
39804.5
6902.
1380
1727.7711
2760
1728.0471

how a Bushel is wooden . 4. inches square 16
14 inches deep 224
allowed 231. W.W

231
8
1848

231.
9
2079



Cranbrook steeple

from N.p. to Biddenden windmill

98	windmill	9
120	to Tenterden steeple	2
155	to Benenden steeple	3
263	to my mount	10
302	to Goudhurst steeple	3
360	to N Point	5
	this is near by truth.	36

190	Tenterden steeple South point x Pory mersh Church	18
257	Rolvenden Church	7
280	Benenden Church	2
380		
333	X Biddenden Windmill	5
	~~to Cranbrook steeple~~	
360	to North point	2

300	Cranbrook	300
302	to Goudhurst	2
360	to N. point	58

374. C. 22 23 - 9.573573
22
136
W. 136 180 9.907958
809.

127..53. 9.902349 = 798.
23 990. 9.591878 3960.
30. 9.698970

889 {366.5 21.30: 9564075 798
522.5.. = 31.30. 9.719089 890.

798 -

798.700:: 5225 (4.583
3657.500.
3665 4655.
25655 6650.
1715. 2660
1190
3925
~~4 35~~

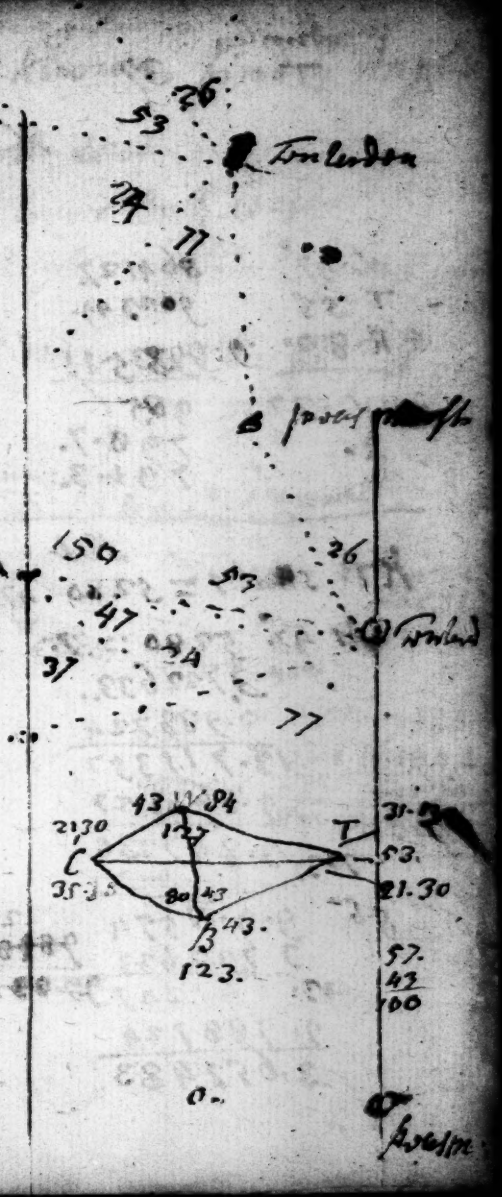
(3.215

WCT. 21.30	CWB. 43..		682.
CTW. 31.30	WCB. 57.30		836
TWC 127..	WBC. 99.30		9878
BTW 53	CBT. 123		
TWB. 84	BTC. 21.30		
WBT 43	BCT 35 30		

22
60
98

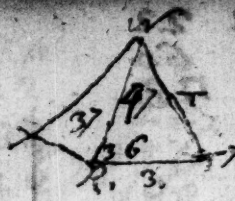
21 22.
35
108
39
~~169~~
204 10

302. 58.58
263 — 39
155 — 108
120 — 35
98 — 22
— 98
300.



Windmill

T 37



130°
77
47
56

W. 47°	864127.
T 53	902349.
R. 80.	9.9983511
W. 37	9857
R.	798.7.
Bm.	731.3.

Hist

RT: 3 miles = 5280 : 47° :: 77. 7034. 5 m.

As 47° 5280 :: 77. :: 56. 6293

5280 3.722633.. 47. 5280 3 miles

9.988724

13.711357

77. 9.864127

7033 3.847230

56° 9.918574

3.722633

13. 641207

9.988724

3.652483

3.722633

~~9.988724~~

~~9.988724~~

3.722633

9.988724

13.711357

9.918574

3.792783

Rectangular triangle.

3 sides being known. find ye Angles

thus. ~~As ½ longest & R~~

As Radius + ½ ye longer : 90 ye least

so is 86. to ye Angle opposite to ye least side

Ex. Rad = 10
longer side . 8
least side. 6

as. 10 + 4 = 14 : 6 :: 86 : (36°. 51′ 2″

516
42
96.
+20
= 6

12
60
720.
20

360
80

obliquangular
may be reduced to Rectang

Angles given by any one side.

~~986~~ − x : ~~90~~ :
90 : 6 − x ::

907.
438

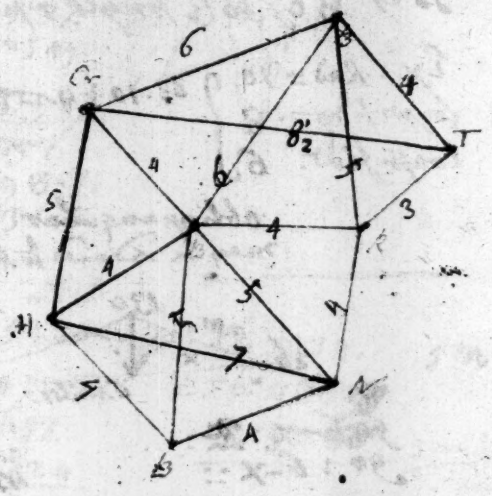
∠ 24 : 1.609333
26 : 1.641842.

903-5 (66 : 9607 70
898-8 (64 : 953660

90
27. . .

a straight line drawn from Benenden Church to Hawkhurst, crosses the lane between the forge & Whatmans leading to Cydors.

		Hayles
3	Bid	37
5	Ent	90
4	Rod.	53
6	Cr	70.30
4	Bid	39
6	Bon	70.30
4	Cr	57
4	How	57
5	Bon	66
5	H	66
4	Bon	57
4	Bod	57
4	H	6.14
4	How	6.15
7	Bo	80.30



Olympiad

Uzziah 25 — Menahem 779. — I. 776

819 — Jehoahaz. 767 — IV. Menahem — 2. 772

Pekah 767 — 3. 768.

Uzziah died 767 — Pekahiah — 4. 764

5 760.

6. 756

Jotham 751 — 8. 752

1 — VIII. 1. — 748

20. Pekah — Ser Nab 1 — 747

Ahaz. Hezeki 745 — Hoshea. — Tiglath 747 — X. 744

14. 731 — 9 Caphiotly 738 — Salmanazar 738 — X. 740 — 738

738 — 9 — X. 736

731. — Sennacherib Jehoahaz died — XII. 732

XIII. 728

XIV. 724

XV. 720

716 Hezekiah Dyed. — Assarhaddon — XVII. 716

747

746 Esra Neh

Manasseh — 31.

Tiglath. 747

9 Salman 738

16 Sennach. 731

17 Hans 730

Asar Haddon

a Chil.

Cyr 676 Kos Bab. 679

Tabrysman 676

Cons. Aegypt.

669.

Jehoiakim 666 81, Dyad 666

Ages 64

Dyad 661 (Ages 55) 89 Jaordnezzar 644

Amon 659. 10 Chi nilidorus 628

Brat.

Josiah 628. Nabopollasar.

123 = 624. Nocoflagn

Jehoiakim 617 Nebuchadnezzar

Zedekiah 606. begins 604

Jehoiachin released

Olym.			Ba Nat		Olymp
I.	776				
VIII	748				
X.2.	738				
XVI	716				
XX	700				
XXV.	680				
XXX	660.				
XXXV.	640				
XXXX	620				
XLV.	600				
L	580				
LV	560	Romulus 553			
LX	540	Rome 334			
LXV	520	Numa 524			
LXX.	500.				
		Pythagoras 496			
LXXV	480				
LXXX	460.	2 Priscus.			
LXXXV	440				
XC	420				
XCV	400	Consuls 408			
C	386.				
				35	XVIII. 712
			CV	360	XXXII. 708
			CX	340	XX 704
			CXV	320	XXX. 700
			CXX	300	XXII 696
			CXXV	280	XXIII 692
			CXXX	260	XXIV 688
			CXXXV	240	XXV 684
			CXL	220	264 1. Pun
			CXLV	200.	
			CL	180	
			CLV.	160	
			CLX	140	
			CLXV.	120	
			CLXX	100	
			CLXXV	80	
			CLXXX	60	Julius Cæsar.
			CLXXXV	40	
			CXC.	20	
			CXCV	00	